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GAS JOURNAL

LIGHT • HEAT • POWER • BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

Vol. CXLII. No. 2876.] LONDON, JUNE 25, 1918. [70th Year. Price 6d.

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GAS PURIFICATION AND CHEMICAL Co., Ltd.

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(See Advertisements p. 580).

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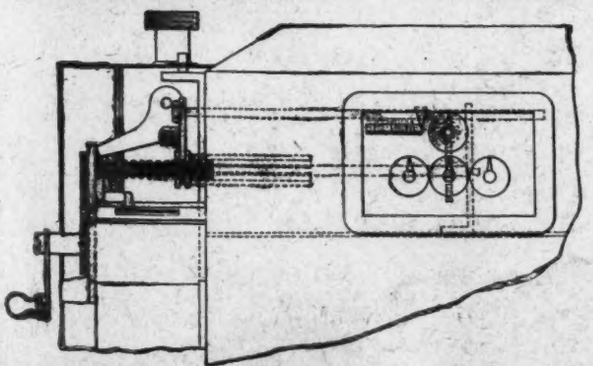

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GAS JOURNAL

LIGHT ✦ HEAT ✦ POWER ✦ BYE-PRODUCTS

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VOL. CXLII. No. 2876.] LONDON, JUNE 25, 1918. [70TH YEAR. PRICE 6d.

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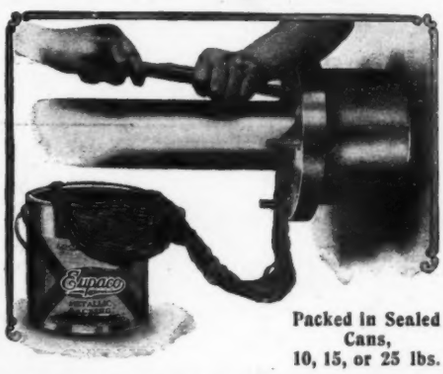

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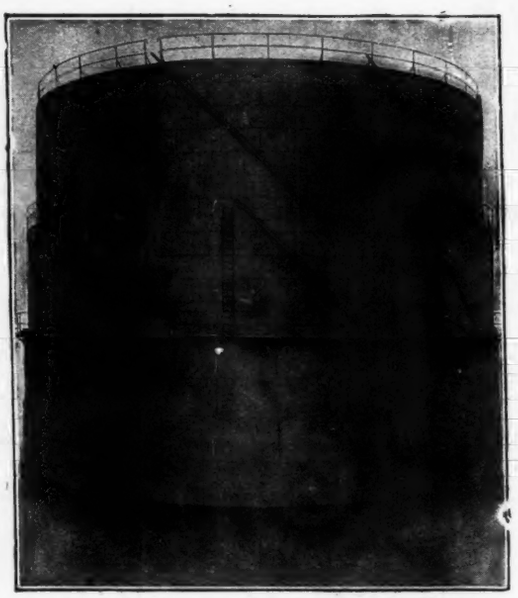

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Gas Engines

ensure continuity of operation and lowest maintenance costs.

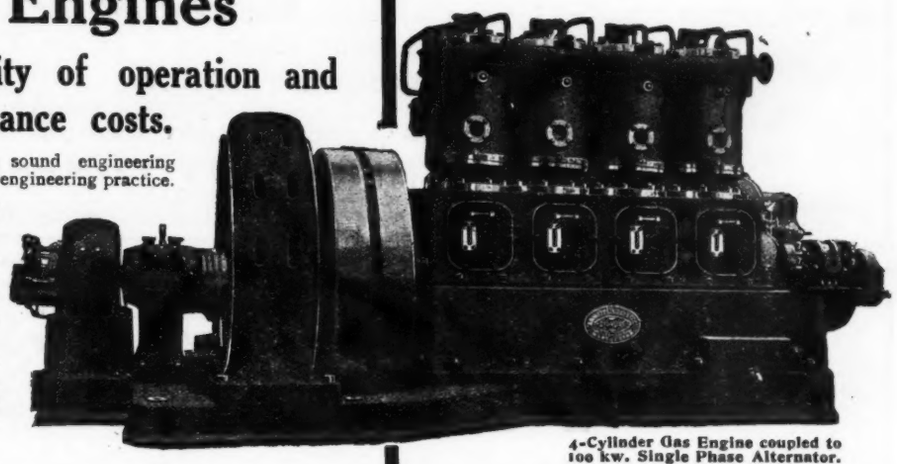
They are developed on sound engineering lines, according to the best engineering practice.

All complicated fittings which are liable to get out of order have been eliminated.

All motion work (including the governor) is totally enclosed.

Forced lubrication is fitted to every working part.

In other words—they are **absolutely reliable,** and will run continuously with a minimum of attention.



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3-LIGHT. LENGTH 33½ IN.
Ordinary U.F. Mantles for all Lamps.

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Gas men to-day recognize the Humphrey System as their best and strongest ally in securing commercial gas lighting. They know that it is built right and backed by the most responsible, liberal, and only strictly gas lamp manufacturing organisation in the World.

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3 LIGHT. LENGTH 23 IN.
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Ordinary U.F. Mantles for all Lamps.

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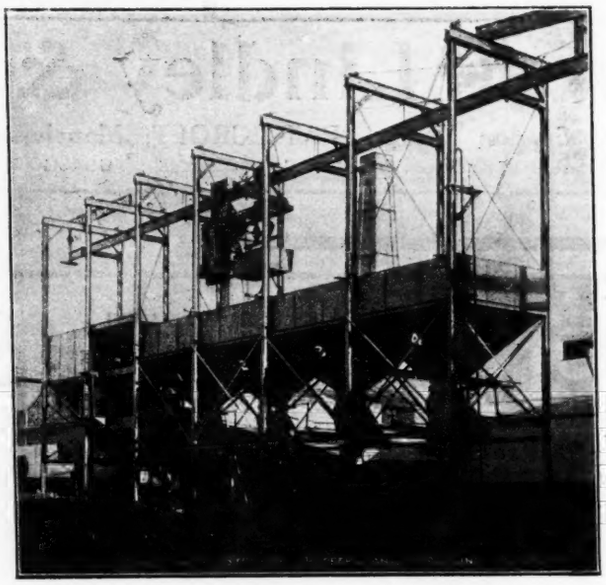
Silent Electrically driven Mono-Rail Telphers for Handling Coal, Hot or Cold Coke, Ashes, etc.

Suitable for all kinds of Transport Service work, by Hook, Skip or Grab.



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Also all kinds of STRUCTURAL IRON AND STEEL WORK, BRIDGES, ROOFS, PIERS, &c.

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It takes considerable time to arrange shipment
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SULPHATE
MURIATE
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PRUSSIATE POTASH
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Stoking Machinery
HYDRAULIC COKE PUSHERS
(HUNTER and BARNETT'S PATENT.)
WILL DISCHARGE A RETORT IN ONE OPERATION
LARGE NUMBERS IN USE.

Full Particulars may be obtained from the Sole Makers,

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GLASGOW.
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SUPPLIERS OF
BASIC AND FOUNDRY PIG IRON.
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9 in. x 4½ in. x 2 in.

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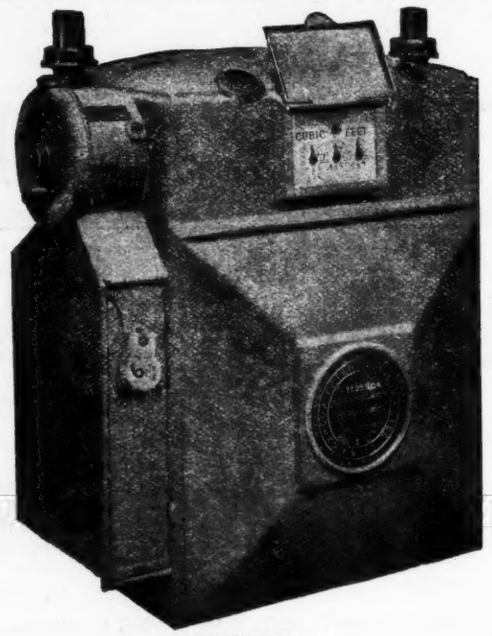
C. PATTERN IMPROVED COIN METER

TO TAKE ANY COIN—ENGLISH OR FOREIGN.

Mechanism simple and strong.

NO change wheels required.

Price Indicator visible from front of Meter.



Coin Slot fixed in convenient position.

Positive ejector for bent coins.

Provision for shutting off valve by hand.

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Everything in Gas Lighting Material

Veritas Mantles, Glassware, Pendants and Brackets, Small Brass Fittings, Ukay Inverted Lanterns, &c., &c.

ALL BRITISH MADE.

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Special Features

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Guest-Gibbons STOKER

Heavy or Light Charges.

THE GUEST-GIBBONS SYSTEM OF CHARGING LOOSENS COAL IN RETORT AND ALLOWS FREE PASSAGE FOR GAS THROUGH CHARGE.

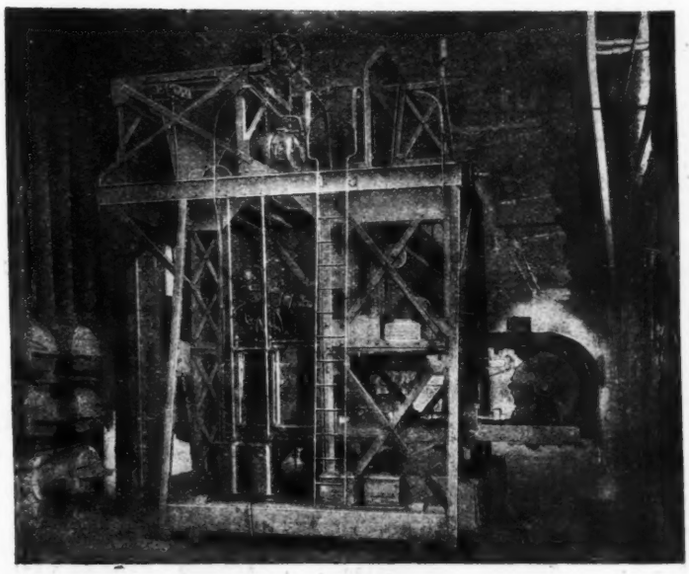
THE CHARGER-DISCHARGER HEAD BEING FLEXIBLE CANNOT DAMAGE RETORT.

CLEAN WORKING—NO DUST.

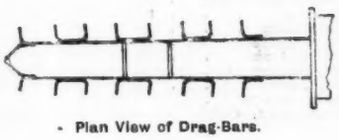
LOW UPKEEP COST.

IMPROVED QUALITY OF COKE.

ALL INTRICATE MECHANISM IS AVOIDED.



Drag-Bars carrying Coal.



Plan View of Drag-Bars.

Drag-Bars leaving Coal in Retort.

36 MACHINES at Work or on Order.

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Aldershot	1,400,000
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Alkmaar	400,000
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Alost	700,000
Amersfoort	300,000
Amsterdam	1,000,000
Amsterdam (2)	1,000,000
Angleur	200,000
Antwerp	1,500,000
Antwerp (2)	1,000,000
Antwerp (3)	1,500,000
Ashford	250,000
Augsburg	425,000
Aylesbury	150,000
Banbury	200,000
Barmen	500,000
Barrow	300,000
Barrow (2)	500,000
Barry	500,000
Bath	1,000,000
Bath (2)	1,000,000
Belfast	1,700,000
Belfast (2)	4,500,000
Belfast (3)	1,250,000
Belfast (4)	1,250,000
Benrath	125,000
Berlin:	
Charlottenburg	2,500,000
Danziger Strasse	1,600,000
Neukoelln	650,000
Neukoelln (2)	700,000
Schmargendorf	760,000
Tegel	3,500,000
Tegel (2)	6,350,000
Tegel (3)	245,000
Bilston	375,000
Birmingham:	
Nechells	3,000,000
Nechells (2)	3,000,000
Swan Village	1,500,000
Windsor St.	3,000,000
Piggott & Co.	1,500,000
Bishop's Stortford	200,000
Bishop's St'f'd (2)	300,000
Bochum	530,000
Bognor	100,000
Bordentown, N.J.	125,000
Bournemouth	1,000,000
Bournemouth (2)	500,000
Bournemouth (3)	1,500,000
Bournemouth (4)	1,000,000
Bournemouth (5)	500,000
Bremen	550,000
Bremen (2)	950,000
Bremen (3)	850,000
Brentford	1,200,000
Brentford (2)	850,000
Brentford (3)	350,000
Bridgwater	200,000
Bridlington	150,000
Bridlington (2)	200,000
Brieg	100,000
Brighton	1,750,000
Brighton (2)	1,850,000
Brighton (3)	750,000
Bristol	2,000,000
Bromley	1,500,000
Bruges	200,000
Brussels:	
Anderlecht	350,000
Anderlecht (2)	350,000
Forest	1,000,000
Forest (2)	1,000,000
Koekelberg	1,000,000
St. Gilles	1,000,000
St. Josse	1,000,000
St. Josse (2)	600,000
St. Josse (3)	775,000
Ville	750,000
Ville (2)	750,000
Ville (3)	1,500,000
Ville (4)	350,000
Bucarest	1,100,000
Budapest	50,000
Budapest (2)	1,750,000
Budapest (3)	200,000
Budapest (4)	250,000
Cardiff	2,000,000
Carlisle	600,000
Carlsruhe	500,000
Chatelet	500,000
Chorley	300,000
Commercial, L'n.	850,000
Commercial (2)	850,000
Commercial (3)	1,250,000
Commercial (4)	2,000,000
Commercial (5)	800,000
Copenhagen	700,000
Copenhagen (2)	2,500,000
Courtrai	250,000
Coventry	600,000
Coventry (2)	600,000
Coventry (3)	800,000
Cracow	200,000
Cracow (2)	200,000
Crefeld	500,000
Crewe	700,000
Croydon	1,250,000
Croydon (2)	625,000
Croydon (3)	625,000
Croydon (4)	550,000
Debreczin	100,000
Derby	1,500,000
Deventer	150,000
Deventer (2)	200,000
Devonport	1,600,000
Dorking	150,000
Dublin	2,000,000
Dublin (2)	2,000,000
Dublin (3)	650,000
Dudley	600,000
Dundee	1,500,000
Dunedin, N.Z.	150,000
Dunedin (2)	275,000
Durham	200,000
Dusseldorf	1,000,000
Eastbourne	1,250,000
Edinburgh	2,000,000
Epsom	225,000
Epsom (2)	300,000
Essen	1,400,000
Essen-Borbeck	1,400,000
Falmouth	150,000
Faversham	200,000
Flensburg	300,000
Flensburg (2)	125,000
Forst	300,000
Frankenthal	175,000
Gablonz	140,000
Gas Lt. & Coke Co.:	
Beckton	10,000,000
Beckton (1910)	7,000,000
Beckton (1911)	3,500,000
Beckton (1912)	7,000,000
Bromley	3,750,000
Fulham	2,500,000
Kensal Green	2,250,000
Kensal Green (2)	2,250,000
Nine Elms	2,750,000
Gelsenkirchen	175,000
Gelsenkirchen (2)	350,000
Geneva	500,000
Geneva (2)	700,000
Glasgow	3,000,000
Gosport	200,000
Goteborg	300,000
Goteborg (2)	600,000
Graudenz	200,000
Grays	250,000
Grays (2)	400,000
Guildford	350,000
Guildford (2)	200,000
Haarlem	850,000
Hamburg	1,750,000
Hampton Court	500,000
Hampton Court (2)	600,000
Hartlepool	750,000
Hebden Bridge	200,000
Heidelberg	200,000
Hilversum	850,000
Holyoke, Mass.	600,000
Hong Kong	450,000
Hornsey	2,750,000
Hull	1,500,000
Hull (2)	1,000,000
Ilford	650,000
Ilford (2)	750,000
Innsbruck	200,000
Ipswich	750,000
Ipswich (2)	1,250,000
Kampen	350,000
Karlsbad	350,000
Kiel	1,000,000
Kiel (2)	880,000
Kolozvar	100,000
Lancaster	500,000
Lausanne	250,000
Lausanne (2)	385,000
Lawrence, Mass.	400,000
Lea Bridge	350,000
Lea Bridge (2)	350,000
Lea Bridge (3)	400,000
Lea Bridge (4)	1,000,000
Leamington	600,000
Leeuwarden	400,000
Leiden	500,000
Leiden (2)	575,000
Leigh	350,000
Lemberg	260,000
Lemberg (2)	500,000
Liege	1,000,000
Liege (2)	750,000
Lincoln	500,000
Liverpool	3,500,000
Liverpool (2)	4,500,000
Liverpool (3)	750,000
Liverpool (4)	1,750,000
Liverpool (5)	1,250,000
Liverpool (6)	3,000,000
Liverpool (7)	1,500,000
Longton	600,000
Louvain	800,000
Lubeck	400,000
Luton	400,000
Maastricht	200,000
Macclesfield	800,000
Magdeburg	1,400,000
Maidenhead	225,000
Maidenhead (2)	225,000
Maidstone	500,000
Maidstone (2)	500,000
Malines	500,000
Malmo	350,000
Malta	400,000
Manchester	3,500,000
Manchester (2)	3,500,000
Manchester (3)	1,500,000
Mansfield	330,000
Marlborough	100,000
Mayence	700,000
McKeesport, Pa.	500,000
Merthyr Tydfil	300,000
Middlesbrough	1,250,000
Middlesbrough (2)	750,000
Mons	500,000
Moscow	1,000,000
Munich	1,400,000
Namur	175,000
Nelson	400,000
Neuss	140,000
Newburgh, N.Y.	600,000
Newcastle, N.S.W.	500,000
New York	5,200,000
Nictheroy	250,000
N. Middlesex	150,000
N. Middlesex (2)	200,000
N. Middlesex (3)	75,000
N. Middlesex (4)	650,000
N. Middlesex (5)	650,000
North Sydney	500,000
North Sydney (2)	500,000
Norwich	1,000,000
Norwich (2)	300,000
Norwich (3)	500,000
Nottingham	1,000,000
Nottingham (2)	1,000,000
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Oberhausen	175,000
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Oldenburg	200,000
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Ostend (2)	200,000
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Pembroke	240,000
Perth, W.A.	125,000
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Port Elizabeth	400,000
Portsmouth	1,000,000
Portsmouth (2)	2,000,000
Posen	450,000
Posen (2)	700,000
Prague	140,000
Preston	1,400,000
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Reading (2)	1,000,000
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Rhymney (2)	250,000
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Romford (2)	350,000
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Rotterdam (2)	1,500,000
Rotterdam (3)	750,000
Rotterdam (4)	750,000
Rotterdam (5)	600,000
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Rushden	425,000
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St. Gallen (2)	225,000
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Scarborough (2)	200,000
Scarborough (3)	350,000
Seaford	200,000
Shanghai	225,000
Shanghai (2)	225,000
Shanghai (3)	1,600,000
Sheerness	200,000
Southall	2,000,000
Southampton	800,000
Southampton (2)	500,000
Southampton (3)	600,000
Southampton (4)	100,000
Southgate	400,000
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Southport (2)	800,000
South Shields	650,000
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Staines	600,000
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Stockholm	1,500,000
Stockholm (2)	1,750,000
Stockport	600,000
Stockport (2)	600,000
Stockport (3)	400,000
Stockport (4)	400,000
Stockton	500,000
Stockton (2)	250,000
Stourbridge	500,000
Stourbridge (2)	500,000
Swansea	750,000
Swansea (2)	1,000,000
Swansea (3)	450,000
Swansea (4)	1,250,000
Swindon	300,000
Swindon (2)	450,000
Sydney	1,000,000
Sydney (2)	1,000,000
Sydney (3)	1,000,000
Sydney (4)	1,000,000
Syracuse, N.Y.	850,000
Taunton	225,000
Taunton (2)	350,000
The Hague	1,000,000
The Hague (2)	500,000
The Hague (3)	1,750,000
Tilburg	400,000
Tirlement	120,000
Tokyo	2,000,000
Torquay	350,000
Torquay (2)	350,000
Tottenham	750,000
Tottenham (2)	750,000
Tottenham (3)	350,000
Tottenham (4)	1,000,000
Tottenham (5)	1,000,000
Tottenham (6)	1,250,000
Tottenham (7)	2,500,000
Tournai	700,000
Tunbridge Wells	1,000,000
Tunis	175,000
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Utrecht	1,000,000
Utrecht (2)	1,000,000
Verviers	1,000,000
Vienna	3,500,000
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Watford	300,000
Watford (2)	350,000
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West Bromwich	850,000
West Ham	1,500,000
West Ham (2)	800,000
Weston-Mare	350,000
Weston-Mare (2)	350,000
Wexford	100,000
Wiesbaden	850,000
Winchester	225,000
Winchester (2)	125,000
Woking	400,000
Wolverhampton	1,500,000
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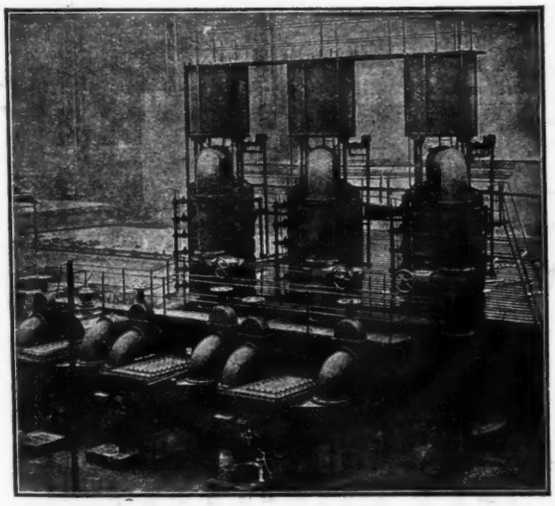

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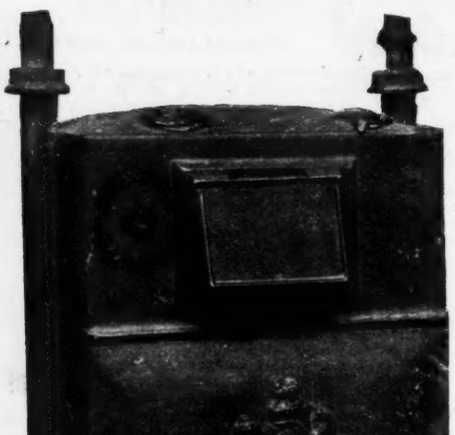

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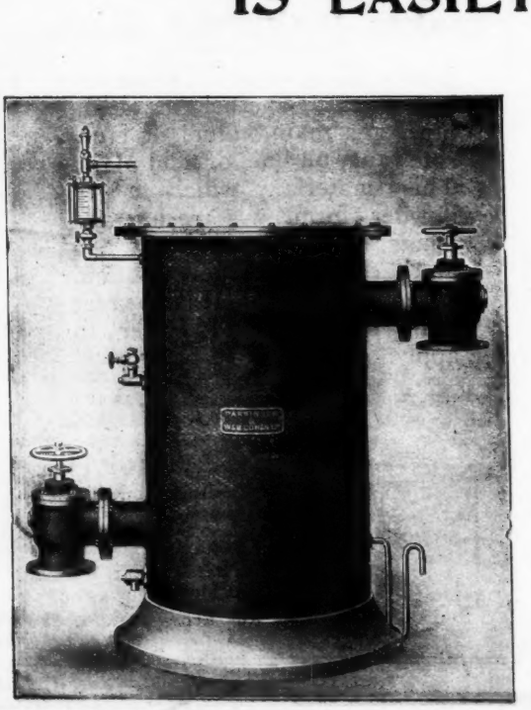

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GAS JOURNAL

LIGHT ✂ HEAT ✂ POWER ✂ BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

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VOL. CXLII., No. 2876.] TUESDAY, JUNE 25, 1918. [70TH YEAR.

EDITORIAL NOTES.

A Vigorous Development Committee for the Gas Industry.

THERE is not in existence a Committee answering the description in our title. It may therefore in a measure be somewhat misleading. Such a Committee, however, is a vital want in the gas industry to-day; and it is a matter of the gravest importance that a very strong effort should be made to secure some general movement in regard to the establishing of one, and to get it to proceed to work without delay. There are in the gas industry men who appear incapable of seeing the facts of the position as they are; there are those who are lethargic in regard to these facts; and there are those who are content to think that, though the war has sent difficulties in veritable deluge on the industry, it has also revealed such potentiality in extended service of the industry that all will be well. It will not be well with the industry unless some determined movement is made to defend its birthright, and to plan-out and to make secure the lines of its destiny. For years we have been preaching the need for a strong organization representative of the whole of the interests of the gas industry. Very largely what has been said has fallen on deaf ears; and, in the result only a little patching-up has been done. Throughout the period of the war, effort has been made in these columns—with other industries on the alert and making a move to strengthen their positions—to get the industry to adopt a definite reconstruction and progressive policy. But nothing has been done, except a little research into the composition of gas. It seems the industry is, without any attempt to help itself, adopting the pusillanimous course of waiting for something to turn up; and the continued pursuing of this course means (it is as certain as anything mundane can be) disaster—disaster not precipitate, but gradual decline, from which there will be little chance of rescue owing to the well-defined progressive policy and advancement of competing industries.

What we are lacking to-day in the gas industry is strong concentrated leadership. Let us be plain; it is the time for plain words. There is not a single individual in the gas industry standing out head and shoulders above other men, as did Sir George Livesey and Sir Corbet Woodall, to take the leadership and to act as protagonists in the cause of the industry. It is better the fact should be recognized and accepted, as it will enable us to get on to firmer ground. But this is no reason for apathy. It means that a method of meeting the deficiency must be formulated, and that without delay; for it is simply suicidal to continue as we are doing to-day. The industry should at once deliberately set itself to the selection of a Committee—not in the old haphazard style, but by inviting to sit on the Committee men with special qualification (engineering, chemical, financial, men of strong grip and organizing powers, men of broad view, men of affairs) and depute the Committee to consider and map-out the line of progressive policy that the industry should adopt, either alone or in conjunction with other industries, and to persevere in it. And, when this work is accomplished, there would be something definite with which to go to the President of the Board of Trade, and solicit his good offices in advancing the chosen policy. Sir Albert Stanley is a man of broad view. He is, or was, as is well known, financially interested in electric traction; but he was so before ever a thought was given to him occupying, as a man of large business capacity, the presidency of the Board of Trade. To him private interests make no difference. A sound case from the gas industry will appeal to him; and what he has been doing for the electricity industry through the Electric Power Supply Committee he cannot refuse the gas industry—not perhaps by the same methods, but conformably with its inherent conditions. These are days when great schemes having for their ends national service are being looked at, and are receiving the countenance and aid of the Government. These are the days of opportunity. The time will be when these days will have passed away; and if the gas industry does not move in them (not in the petty way it has been doing lately in connection with the electricity report), it will be left struggling with the old precedents and legislative formulæ which have been and are its curse.

Over the Committee that is in mind a strong independent man should preside. The notable address by the Right Hon. Lord Moulton, with its call and warning to the gas industry, the promise of his Lordship to help the gas industry in any way within his power, singles-out at once for the office a wise and interested friend of powerful mind and position. Failing his Lordship, there is another who has won the esteem of the Government for his proved capacity and grasp of affairs, and is, moreover (this is important), a son of, and trained and reared in, the gas industry—that is Sir Arthur Duckham, K.C.B. If such a Committee is formed, and Lord Moulton can be prevailed upon to take the chair, Sir Arthur should anyway be a member of the Committee, if his other onerous duties will permit. We feel that his loyalty to the gas industry would cause him to endeavour to help the industry; for this (like the issue of the war) is a matter for all time, and the industry to-day needs the best brains, the most far-seeing eyes, and men who can take a strong grip of the situation and act energetically.

Not only has a call to the industry come from Lord Moulton, but from another quarter. Rumour has made it general knowledge that Sir Arthur Duckham some time ago attended meetings of the Executive Committee of the National Gas Council, and warned them of the necessity for the gas industry bestirring itself. This was repeated at a private function quite recently; and, despite the fact that the speech was not reported, we are—duty in the interests of the gas industry urges us to do so—going to use some of the points that Sir Arthur made. It may not be generally known that for some time he was in charge of the whole of the electrical supply of England, which, to say the least, is a great compliment to the gas industry, and points to the personal capacity he possesses for impartiality. Naturally, in this connection, he came into close and intimate touch with the Board of Trade proposals for the greater centralization of electricity generation, as well as with the efforts that are at present being made for the utilization of low-temperature carbonization, and the combination therewith of gas-producer plant for the manufacture of gas for boiler heating (for example, at electricity generating stations) and other industrial use. Consider these projects, and their possible effect upon the opportunities for development of the gas industry. Such lines of action would be to set up new systems that would take from the gas industry much virgin territory which its equipment, business, technical experience, and established position well qualify it to enter into possession. It can be quite understood that Sir Arthur came to the conclusion that the development of the electrical industry was being given great prominence, while that of the gas industry was being largely neglected through the gas industry itself sitting outside, quiescent and inactive as though nothing at all was happening in which it should have a part. No one in the gas industry is foolish enough to dispute that, in point of convenience and efficiency, there is a tremendously large place in industry for electricity in

driving machinery and for concentrated high-temperature work. Such an admission as this can be made without any relinquishing of an equally true fact—in industry there is also a tremendous business scope for gas undertakings in power and industrial heating. When we come down to the selling of units of heat, electricity cannot in any way compare with the units of heat that can be supplied for a given price by gas. In the development of electricity generation, the gas industry should have its place. That is where, in these days of economic considerations (including fuel economy), there should, in the national interests, be linking-up. The gas industry from all points of view—and particularly from that of its multiplex and indispensable service to the national interests—should be considered nationally, just as the electric industry has been considered nationally. This claim can be made not only in the industry's own interests, but (let this be emphasized) in those of the nation itself.

Meanwhile, things promise to move fast in the electricity industry. Already Sir Albert Stanley has stated that a Bill is to be drafted to carry out the recommendations of the Board of Trade Electric Power Supply Committee; and it will be remembered that the foremost of these recommendations is the establishment of a body of Electricity Commissioners for legislative and control purposes. We have before pointed out that to have competent Commissioners of the kind constantly in touch with the needs and developments of the electricity industry will be an advantage to the latter which will not be possessed by the gas industry with its legislative work being performed by the old machinery, in the main part by Select Committees of varied composition, out of touch with the needs of the industry, and therefore out of sympathy with it. Both gas and electricity supply agents for light, heat, and power; and perhaps it might be that, in the national interests, a body—qualified, unbiassed, and as constant as such a body can be—could deal with the two industries jointly, instead of legislating as is at present proposed in a manner which will give undue preferential advantage to the one over the other.

As Lord Moulton has said, even for lighting, heating gas is the primary commodity that the gas industry has to supply. Flame temperature is as important as calorific power. But as flame temperature is not a readily measurable quality and calorific power is, and as a standard must be provided to meet the requirements of our legislators, then perforce it must be a calorific power one. Therefore, said Sir Arthur Duckham in effect at the little function to which we have referred, in framing our policy or case to lay before the Board of Trade, let the gas industry adopt a calorific standard that can be applied to the whole gas supply of the United Kingdom, with provision for modification in such towns where the chief industry demands the continuance of the use of flat-flame burners, until such time (if ever) as scientific research will enable the industry to meet in some other way such exceptional cases with a lower-grade gas. But because of exceptional circumstances in isolated towns, the gas industry ought not to be generally retarded in its progress towards supplying a suitable heating gas. The second point that Sir Arthur made was that, if the electrical interests are going, in the cause of better coal use, to become largely dependent upon the gas-firing of their boilers, then the gas industry should be associated with the project; for it must be patent to the powers that be that an industry already dealing in gas and the treatment and sale of the secondary products arising from coal carbonization, should economically be in a stronger position for the expansion of this work than a newly created industry. On all grounds, there should be very strong insistence upon this. The third point that he made was that there ought, in the national interests, to be unification of effort in respect of the treatment of bye-products—more especially of tar and the ammonia products. The gas makers and the coke-oven owners, together with the tar distillers, should, in his view, get together to work out a scheme for the production and treatment of those products from the carbonization of coal the national importance of which has been emphasized by the war.

These are not the only matters for consideration; but upon them—though to our knowledge it is months ago that they were first introduced to notice by Sir Arthur Duckham—practically nothing has been done. Something has been attempted in regard to tar; but nothing of a settled character has yet resulted. In short, there is no strong line of policy before the industry. The idea of forming an *ad hoc* Committee to plan the lines of a development policy to submit to the Government emanated from Sir Arthur. We have no claim to being the originators of the idea, though we have to the one of supplying a Chairman for such a Committee in the event of Lord Moulton failing. It is a question—and we say this with all seriousness—of now or perhaps never. To-day a golden opportunity offers—in fact, such an opportunity has never before been offered. Is the gas industry going to reject it? The petty jealousies and the parochial opinions of gas engineers must sink before the common interests of the industry. The position should be grasped now, and attacked with energy. It is no use cajoling ourselves into the belief that indispensability is our protection. While sitting idly by watching with apparently little concern the course of events outside, this indispensability may be largely filched from us; and so may those opportunities the presence of which appears to be welcomed with the coldness that would suggest that they can well be done without. Let the gas industry show at once, by forming a strong and live Committee to take up this matter, that there are within it men who feel the responsibility of the present position in its relation to the future, and who want that future to be a striking testimony to their alertness and statesmanlike handling of the position of to-day.

Considered Opinions on the Report.

THE crude and inconsistent report of Sir William Middlebrook's Committee on the subject of relief in respect of gas capital under war circumstances, has been the main subject of conversation in gas circles this last week; and there are people who have been looking about for someone, or for somebody, upon whom to lay the blame for an action of the Committee which is diametrically opposed to their own findings on the case presented to them. What the Committee have done is equivalent to a judicial tribunal determining that a man is "not guilty," but at the same time inflicting a heavy fine on him. No one is to blame for what the Committee have done save the members of the Committee themselves. There is nothing to be gained therefore in trying to make others share the blame, or to adopt any criminatory attitude. Those who followed the proceedings closely know that a joint case was forced upon the promoters of the Bills by the procedure adopted by the Committee, no doubt in consultation with the authorities of the House. The only objection we have found to the conduct of the case was the torrential outpouring of words in explanation of purely historical matters, which could have been treated with much more brevity, while additional information could have been given to the Committee as to the various plans of relief incorporated in the Bills before them. The Committee's findings, as intimated in our comments last week, attest in the best possible manner that they were satisfied the promoters had proved their case, despite its composition. Then came the recommendations which have no relationship whatever to the findings; and the Committee themselves must be well aware of their incongruity and inadequacy. To think otherwise, would be as great an insult to the intelligence of the members of the Committee as their own report is to their sense of justice to investors in commercial enterprise suffering not from normal causes, but from the rigours of war circumstances bound by pre-war statutory enactments.

There are those who think the promoters who adopted the proposals of the National Gas Council asked for too much. Mr. A. M. Paddon is one who is of this opinion. Some fifteen months ago he urged in our columns that nothing more than protection for the standard rate of dividend should be sought. In a letter published to-day, it will be seen that he regards the proposition that was made by the Council as "incontinent and involved—incontinent "because it sought more than it was prudent to justify; in- "volved because the operation of the sliding-scale restricted "to its own limits can hardly have been more than tran- "siently intelligible to a Committee of laymen." But Mr. Paddon's criticism would seem to indicate that he has overlooked the facts that there was no compulsion on the part of the promoters to adopt the proposition of the Council, and that several of them did not do so. The promoters had variously their own views; and so the Committee had before them quite a number of alternatives. Among them was the proposal of the South Metropolitan Gas Company, which fitted the view of Mr. Paddon, by asking merely for an increase of standard price to the extent that, under their then conditions, would have given them their standard dividend of 4 p.ct., without any provision for those still harder times

which the Committee themselves foresee for gas undertakings, and which in regard to coal are already here. But nowhere do we see that the Committee were in any way attracted by even the continent and simple suggestion of the South Metropolitan Company. In short, we cannot find that there is anywhere an opening through which stones can be fairly thrown at the Council. The report of the Committee is nothing more nor less than a confession of their weakness. It seems to indicate very plainly that, having found the case proved, commonsense and all other intelligent considerations were sacrificed to the realizing of a superficially unanimous report, which is out of harmony with the judgment of some of the members of the Committee. It looks like much give on one side and all take on the other. Those members who started with fair views had to drop back into the very last trench, before they could get into agreement with the members who possibly were not prepared to give any relief. We say that this is what it looks like; and the view is one that is very widely shared.

However, Mr. Paddon is well-versed in parliamentary proceedings relating to Private Bill legislation; and the most satisfactory feature of his letter is that he does not even now regard the situation as hopeless. We trust he is right. There is at the time of writing to be the appeal to the House. The opportunity may be afforded this evening. If so, or whenever it is, it is to be hoped the House will say that the recommendations of the Committee are out of sympathy with their findings, and accordingly amend them. There is no compulsion upon the House to adopt the report. As Mr. Paddon remarks, the recommendation is not a mandate; it is an opinion, not a judgment. The report is, he adds, only binding on future Committees to the extent that they may voluntarily adopt its guidance. He instances the action of Select Committees after the report of the Gas Residuals Joint Committee. As a matter of fact that Joint Committee might almost as well have never reported, except for the justification it pronounced regarding the action of the gas industry; for since the report the Private Bill authorities have exercised a tremendous influence not by giving effect to the recommendations of the Joint Committee, but to the views on the lines expressed in the Model Clause of subsequent Committees who had not had before them the complete case that the Joint Committee heard. Such are modern legislative ways. We are getting very much mixed up in respect of parliamentary doings and decisions through the predilections of our legislators and parliamentary officers. However, Mr. Paddon has not lost faith in Select Committees. His advice is that each undertaking that finds its position intolerable under the conditions now complained of should press its individual case upon Parliament, irrespective of the findings of the Committee, upon the principle that any general legislation may well be qualified by special and exceptional circumstances, and that the question in any case is as much one of degree as of principle. In this, there is agreement with Mr. Paddon. At the same time, the recommendations of the report while they exist suggest a course which, for ease, may be adopted, but which constitute a gross injustice from every point of view—not only to the companies who were promoters this session, but to gas capital generally. While the Government consider that 5 p.ct. is not too little to offer for loans with the security of the State behind them, this Committee's opinion is that 1½ or 2 p.ct. is sufficient to maintain in the public interest the stability of gas undertakings. The comparison shows the absurdity.

And further absurdity is illustrated by the contributed article in this issue on "Sliding-Scale Companies and the "Select Committee's Report" [p. 588], showing conclusively that the Committee have not considered the effects of their recommendations. The table which our contributor has compiled speaks volumes. Just observe the figures in the column showing the prices of gas in the case of the promoting companies which represent the equivalent to a moiety of the standard dividend; and then the succeeding column which shows the price of gas which must be reached before the penalty of war cost upon gas capital is arrested. On comparing the two columns, those members of Parliament who originally fixed the standard prices will not hold a very high estimate of a Committee who consider that, under war or any circumstances, a revision is necessary to the figures shown before one-half the standard dividend is assured. The other columns in the table are equally telling. Nor have the Committee considered other important points—such as the fact that arrears of dividend in the case of maximum-dividend companies can be made up in later years, but cannot be in the case of sliding-scale companies. Also the large differentiation made as between municipal and company controlled undertakings cannot be justified; nor can the fact that while, under the Committee's proposals, private "gas capital is to be swept aside, down-"trodden, and confiscated, electrical undertakings are to "have Government subventions." This is legislation and justice as understood by Sir W. Middlebrook's Committee!

The National Gas Council Moving.

NATURALLY, there is considerable alarm in the gas industry, and not less among the holders of capital than among those responsible for the well-being of the industry, over the so-called "relief" recommendations of the Select Committee on "Financial Hardships." But we are in a position to assure all those who are so concerned that the National Gas Council are, without loss of time, taking every possible step in the matter. Towards the end of last week, an interview was obtained with Sir Albert Stanley, the President of the Board of Trade; and now serious consideration is being given to the course that shall be pursued in order to publicly ventilate the several grievances of the gas industry. The Executive Committee, fully alive to the urgency of the position, are framing a definite line of campaign to arouse public opinion in the matter.

Another Two-and-Sixpence on Coal.

A FURTHER bolt not from the blue, but from the Coal Controller's Department, has come upon the gas industry. Its seriousness cannot be too strongly proclaimed. It is that the price of coal, as from yesterday, is increased by 2s. 6d. per ton. This comes upon the increase of 2s. 6d. made last autumn on account of miners' wages; and it is stated that the new increase corresponds to the enhanced costs of working at the collieries in respect of which no advances have been made, except in South Wales, Monmouth, and the Forest of Dean. The half-a-crown seems to be a very useful measure of the increments of cost, no matter how they arise, in the coal industry. It would be interesting to have some details of the enhanced working costs, because, when the last 2s. 6d. was put upon the price of coal, it was conclusively demonstrated that in it there was a margin beyond the cost of the extra burden then imposed by the raising of the miners' wages. But unfortunately the seriousness of the position does not end here. There has still to be dealt with the application of the miners for a further addition to their wages of 1s. 6d. per day for adults, and 9d. for boys; and if this is conceded, and the precedent of last autumn is followed, there will be another 2s. 6d. per ton put on to the price of coal. It is totally unfair upon all industries that these increases in the cost of coal should be sprung upon them in this fashion, and especially upon such an industry as that supplying gas, and largely working under statutory restrictions in regard to prices and dividends. The fresh increase in the cost of coal renders the recommendations of the Financial Hardships Committee still more absurd.

The New Rationing Order.

THE full text of the new Fuel and Lighting Rationing Order is expected to be ready during the current week; but right up to the end of last week, it was undergoing modification in certain particulars—the result of discussion between the various departments. Therefore, the digest of the Order by Mr. Edward Willis, which we publish this week [p. 597-9], and which was presented at a conference of the Institution of Municipal and County Engineers last week, must be taken to be subject to the confirmation of the final official document. But we can go so far as to say that, Mr. Willis being the Coal Overseer for Chiswick, there is little question that in the main what he says will be found correct. It will, in the first place, be seen that England and Wales are divided into three areas in which there is some differentiation of the coal basis of the *fuel part* of the scheme, owing to climatic and transport differences. We have here emphasized the words "fuel part" of the scheme, because it will be found that the use of coal, gas, and electricity as "fuel" is completely separated from the gas and electricity rationing for lighting purposes, which is based, not on coal, but on the number of rooms in use in a house. Consequently, the ration for lighting must not be used for fuel; nor must the ration for fuel be used

for lighting. How the gas consumer with one meter, or the electricity consumer paying on the rateable value system, is to discriminate between the two is one of those mysteries which we are not going to attempt to elucidate. As fuel, the 15,000 c.ft. of gas and 800 units of electricity as the equivalent of 1 ton of coal stand good—calculations being made to the nearest ¼ ton. The figures are a fine compliment to the heating value of gas as compared with electricity, and to the economy of coal in the production of gas compared with the average quantity used in the country for the production of electricity—a point made in dealing with the Order a fortnight since. While referring to fuel, it will be observed that it is intended that 3 tons of coke shall be taken as the equivalent of 2 tons of coal, which will be an attraction for the purchase of coke, and should be made much of by gas undertakings.

The lighting ration is on a fairly liberal scale, considering the conditions. It commences with 7500 c.ft. of gas, or 100 units of electricity, for one, two, or three rooms. It will be found that the figures proceed upwards in equal steps according to the number of rooms, until 30,000 c.ft. and 400 units are reached for houses containing nineteen to twenty-one rooms. The allowances are again a compliment to gas. Taking the efficiency of an ordinary inverted gas-burner as 20 candles per cubic foot, the 7500 c.ft. of gas will give 150,000 c.p. hours compared with 80,000 c.p. hours for the 100 units of electricity. Those consumers who use both gas and electricity for lighting are to adopt the conversion factor of 750 c.ft. as being the equivalent of 10 units of electricity. One-third of the allowance is to suffice for the two summer quarters, leaving one-third for each of the winter quarters.

It will be remarked that procedure will have to be very carefully studied by all interested parties, including the consumers; and they will all find that the local overseer is a person of considerable importance in the powers that he will possess—powers superior to those of the District Committees which are to be appointed. He will have power to inspect the suppliers' records and returns; and returns of quarterly meter readings will probably have to be made to him, and any excess of consumption noted thereon. How gas undertakings, with their depleted staffs, are going to perform the additional duties that will be thrown upon them we do not know; and what staff the local overseers will have to be provided with to examine the few millions of quarterly gas accounts in the country, is not explained. There is a great deal about the plans for carrying into effect the regulations which are inexplicable; and it will be found in this relation that just as a day is limited to twenty-four hours, so there is a limit to human capacity in carrying out regulations. It is sometimes easier to legislate than to perform; and this Order it may be anticipated will furnish a case in point.

London County Council and the Gas Bills Committee.

We regret exceedingly that, through a misunderstanding, we stated in last week's issue of the "Journal" that two of the members of the Gas Bills Select Committee were members of the London County Council. What we should have said was that three of the members of the Committee had been members of the Council, if "Dod's Parliamentary Companion" for 1918 can be taken as a faithful guide. By it we are informed that: "Allen, Arthur Acland (Dumbartonshire)," was a "member of the L.C.C. 1899-1913, and was Deputy-Chairman, 1908;" "Baker, Joseph Allen (Finsbury, East Div.)," was a "member of the L.C.C. for E. Finsbury, 1895-1907, and has been Chairman of the Highways Committee;" and "Fletcher, John Samuel (Hampstead)," was a "member of the L.C.C. 1889-1904, Deputy Chairman 1900." Three of the members of the Committee, therefore, had old, and probably affectionate, associations with the Council.

Some of the Wreckers of Financial Stability.

In our "Miscellaneous News" will be found the part of the report of the Public Control Committee of the London County Council dealing with the recommendations of the Select Committee on financial relief for gas companies. It will be seen that it is admitted that, so far as London is concerned, the proposals made by the Companies would only have necessitated the addition of 2d. per 1000 c.ft. to the price of gas; but it is added that a still larger burden would have resulted if the price of gas should rise further. This it is bound to do [the South Metropolitan Company have already had to advance their charge to 4s.] in face of the extra 2s. 6d. put upon coal yesterday by the Coal Controller; and this will mean a further shrinkage in the deplorable rates of dividend shown in the table in the report. The Committee (who have no room for consideration as to the "burden" upon gas stockholders), with unadulterated finesse, speak of the capital as "converted." They do not say anything about the number of the stockholders who paid large premiums for the stock before conversion, nor of the number who have purchased converted stock. In other words, the Public Control Committee and their advisers have come to the conclusion that gas capital should be treated differently from other capital in these times, and that it should not obtain, though employed in the service of the consumers, a fair return, to give which would, on their own showing, only mean 2d. per 1000 c.ft. more. As a further instance of studied strategy, it is observed that the Committee have included in the table the Wandsworth Company, who are not among the applicants for relief in regard to their ordinary stock, and who have been exceptionally fortunate in a low capital account in relation to business done. Was this inclusion meant to act as a set-off against the other terribly emaciated dividends?

An Appeal to the Miners.

The subject of the suspension of the Miners' Eight Hours Act, in order to enable miners to increase the output of coal, was revived at the recent meeting of the National Gas Council. The position in regard to supplies has been altogether altered since the Germans by their advance have largely obtained domination by gun fire, if not by their actual presence on the ground, of certain of the coal mines of France, which means the need of increased supplies from this country for our Allies, despite the fact that no less than 400,000 British miners have answered the call to the Colours during the war. Since Jan. 1 last, some 75,000 recruits have been taken from among the miners; and a further 25,000 were to have been obtained. But in view of the position this has been deferred. When the suggestion of the suspension of the Eight Hours Act was made at the National Gas Council meeting, we pointed out that there was no necessity for this course if the miners would only work present full time, and would renounce all avoidable absenteeism. The Coal Controller (Sir Guy Calthrop, Bart.) confirms this in an appeal which he has addressed to the miners through their unions. Even an extra output of no more than 10 cwt. of coal per week per man would result in a national increase of no less than 10 million tons per annum. What it would be if the men put forward their best efforts during full time cannot be said, but it would be a considerable addition to the 10 million tons. While as working days and hours stand at present there is this frittering away of valuable time and output on the part of many of the men, little use would result from the suspension of the Eight Hours' Act. However, the Coal Controller has made his appeal in the name of those comrades from the mines who have gone to the front, and many of whom have made the supreme sacrifice. He also points out that avoidable absenteeism is a negation of community of sacrifice, and that such absenteeism is not practised in the Army. In making his appeal for more coal, Sir Guy also asks for cleaner coal, the dirtiness of which is a terrible sacrifice of the country's efficiency and carrying power. We hope the appeal will have good effect. By the result the country will be able to judge of the patriotism of the men left in the mines. The trouble of those who are patriotic in keeping good working hours is that the country generally, having no means of making discrimination, regard them as all alike in acting in a way that is to the national disadvantage.

Coal Wages and Output.

In an earlier column, reference is made to the fresh increase of 2s. 6d. in the price of coal, as from yesterday. A further serious uncertainty in regard to the future is the demand of the miners for an additional increase in their wages of 1s. 6d. per day for adults, and of 9d. per day for boys under 16 years of age. Some interesting figures bearing upon the subject have been recently published by the Secretary of the Monmouthshire and South Wales Coal Owners' Association (Mr. Finlay Gibson); from which it seems that there is no reason—let alone any substantial one—for the new application. On the basis of the

number of persons employed in the coal mines of the country in 1917, the concession of the demand would add about £22,000,000 to the annual wage bill of the coal industry, and would necessitate (so it is calculated) an increase in the price to consumers of at least 2s. 6d. per ton. The miners base their demand on the increase in the cost of living. They received their last special war wage of 1s. 6d. per day as from Sept. 17, 1917. But the Board of Trade "Labour Gazette" gives an average percentage increase in the level of food prices over those of July, 1914, of 106 p.ct., which is exactly the percentage increase in the level of food prices shown in Sept., 1917. The actual increase in the average family expenditure since the beginning of the war is also estimated at 55 p.ct. The average increase, however, in miners' earnings during the period of the war has been substantially more than the 55 p.ct. increase in the average family expenditure. High wages are invariably accompanied by low outputs; and, even during the period of the war, high wages have been followed by diminished production. Since 1915 wage rates have been raised to unprecedented levels; but the output per person employed underground in the United Kingdom fell from 335 tons that year to 306 tons in 1917.

The Gas Industry as a Training Ground.

A well-known engineer was recently heard to say that he knew of no better training ground for an engineer than the gas industry, owing to the variety of its operations, and therefore requirements. In many gas-works in the country the engineer can get experience in constructional engineering, as well as in mechanical, electrical, hydraulic, steam, railway, and chemical engineering. The several operations and the diversity of work broaden the mind, and give it good stability in managerial and commercial work in many directions. We see no reason for disagreeing with our friend.

OBITUARY.

THOMAS BERRIDGE.

IT is with a feeling of sorrow which will be shared throughout the industry, as well as by his fellow townsmen, that we have to record the death, early last Thursday morning, at Malvern, after a short illness, of Mr. Thomas Berridge, of Leamington Spa. For some time past, it had been a grief to his friends to know that his health was by no means so robust as could have been wished; for his worth was fully recognized by those who knew him. Through his death, at the comparatively early age of 57, the industry has to mourn the loss of an earnest worker and an upright man. To his widow deep sympathy in her bereavement will be extended.

Mr. Berridge was educated at a private school in Derby, and commenced his professional career in 1876, when he went as a pupil to the late Mr. Charles Taylor, who was at that time Engineer and Manager to the Derby Gas Company. In course of time, he was made Assistant Manager, a position which he held for three years; and then he was given charge of the distribution department. Later he was made Manager of the Litchurch works—retaining this post until 1897, when the Directors of the Leamington Priors Gas Company (after having asked the late Sir George Livesey to nominate someone to fill the position) gave Mr. Berridge the appointment of Engineer and Secretary. The years which he had spent at Derby were busy ones for the Gas Company, for much money was expended on extensions. Nevertheless, Mr. Berridge, who was always an active man, managed to find time to devote to the Derby Society of Engineers. On leaving the town, he was presented by the officers and workmen of the Derby Gas Company with a salver and a pair of candlesticks in silver; the presentation being made by Mr. Taylor, who spoke of Mr. Berridge's excellent qualities, and declared that the Directors of the Leamington Company in securing his services had taken a course which they would not regret.

It was in September of 1897 that he was appointed to Leamington, where he succeeded Mr. William Cross, who had, owing to continued ill-health, been compelled to resign the position of Secretary, Manager, and Engineer. At the end of 1913, recognition of his services to the undertaking was made by giving him a seat on the Board; and he became Managing-Director, though it was stated that he would continue to act as Engineer and Adviser to the Company. His interest in local affairs included membership of the Leamington Town Council. He was, indeed, asked to be Mayor, and would no doubt have accepted, had it not been for his failing health. He was also a J.P. for the town and county of Warwick. Besides being Managing-Director of the Leamington Gas Company, he occupied a similar position in connection with the Warwick Gas Company, and was a Director of the Nuneaton, Whitney, and other gas companies, as well as Consulting Engineer to the Whitney and several other undertakings. He had, in fact, considerable practice in connection with the remodelling and extension of works for both companies and local authorities in the Midlands. At one time, he was called in to advise on the Brownhills Gas-Works, near Walsall, which were then in a very bad way. In his usual thorough manner, he renovated the whole concern, and in due course developed it into a dividend-paying proposition—becoming himself Chairman of the Company.

As long ago as 1885, Mr. Berridge joined the Incorporated Gas Institute; and he has taken a prominent part in Association work. It had been hoped that he would in due course occupy the highest place the profession has to offer in this connection; but unhappily health considerations barred the way, and at the meeting early this month of the Institution of Gas Engineers it was intimated that he had been compelled to resign the position of Vice-President. Some twelve years ago, he was President of the Midland Association of Gas Engineers and Managers, at whose meetings he was a regular attendant; and he was also a Fellow of the Institute of Secretaries. Mr. Berridge was always keenly interested in educational matters; and his desire to encourage effort and to assist others was very well exemplified by the formation, in 1905, during his presidency of the Senior Association, of the Midland Junior Gas Association. This was a scheme on which Mr. Berridge and the late Mr. Charles Meiklejohn expended much time; and much of the success which has attended the Association must be ascribed to the whole-hearted support which it always received from these gentlemen. A remark characteristic of Mr. Berridge's views was made by him at the meeting held to consider the advisability of forming a Junior Association, when he said: "Those at the top can always keep there; and those at the bottom should have an opportunity of getting up, if they are willing and able to take advantage of it." Another instance of Mr. Berridge's thoughtfulness for others to which allusion may be made was the interest he took, about twenty years ago, in getting together a small sum to be utilized as a sort of pension for the widow (then nearly eighty years old) of Mr. Edward Heard. Mr. Heard is mentioned in "King's Treatise," in the chapter on "Early Attempts at Purification," as having taken out the first patent in connection with the subject. He was at one time assistant of Winsor, and was afterwards a lecturer on gas in the Provinces; and his widow was in straitened circumstances when the appeal for funds was made through the medium of the "JOURNAL." Mr. Berridge was an associate member of the Institution of Civil Engineers. He was well-known in Masonry.

The funeral was at Leamington yesterday afternoon, there being a service at the Parish Church.

CHARLES HARRISON.

At the moment of going to press, we received intimation of the regretted death, on Sunday morning, of Mr. CHARLES HARRISON, who had been Engineer to the Accrington and District Gas and Water Board, and to the Company from whom the undertakings were purchased, since 1877.

A native of Accrington, Mr. Harrison began his career with the Gas and Water Company as a junior clerk, and nine years later was appointed Assistant Secretary and Manager to the Luton Water Company. After remaining there for some time, he went to Ryde, where he spent about three-and-a-half years as Assistant to the late Mr. George Garnett, who was Engineer to the gas-works there. In 1877, the position of Secretary and General Manager to the Accrington Gas and Water Company became vacant; and he obtained it, thus returning to the town of his birth and early business career. As evidence of his success there, the fact is recorded that the shareholders of the Company received maximum dividends during the whole of the time that he had charge of the undertaking, as well as large sums to make up some deficiencies in dividends of years previous to his appointment. It was in 1894 that the works were, by agreement, acquired by the Accrington Corporation and various interested local authorities; and Mr. Harrison continued his services under the Board which was then constituted. Under his management, the demands for gas and water grew apace, and much extension work was carried out under his supervision.

Mr. Harrison was a member of the Institution of Gas Engineers, and also of the Manchester District Institution of Gas Engineers; but his activities were mainly confined to the affairs of his own undertakings.

We learn, with great regret, of the death, on the 12th inst., of Heer J. VAN ROSSUM DU CHATTEL, for many years Engineer of the Amsterdam gas undertaking. He was well-known to a very large circle of English gas men, who were always sure of a most cordial welcome from him on their visits to Amsterdam. His loss, at the comparatively early age of 59, will be keenly felt by his professional colleagues. The funeral took place on Saturday, the 15th inst., at the "Zorgvlied" cemetery. Fuller particulars of Heer van Rossum du Chattel's career as a gas engineer will be given in a subsequent issue of the "JOURNAL"—the news of his death having reached us only shortly before going to press.

South Metropolitan Company's Price Increased.—The South Metropolitan Gas Company have given notice that the price of gas will be raised for ordinary consumers to 4s. per 1000 c.ft. from the Midsummer readings, and for slot-meter consumers in proportion. This follows on the announcement of an advance in price of 2s. 6d. per ton for coal.

PERSONAL.

The friends of Mr. H. L. Johnson (who is the son-in-law of Mr. Worthington Church) will be pleased to hear that his services in France and Flanders as Chief Commissioner over the Church Army Huts have been recognized by his inclusion in the Honours List as Commander of the British Empire.

The new Directors of the Okehampton Gas Company, Ltd., have appointed Mr. C. J. Rhoades, of Bond Road Gas-Works, Mitcham, as Manager; and Mr. A. J. Kingdon has been appointed Secretary. The registered office of the Company has been removed to Suffolk House, No. 5, Laurence Pountney Hill, E.C.

The Principal (Sir H. W. Hadow) announced at a meeting of the Council of Armstrong College, Newcastle-on-Tyne, that Miss Stephenson had offered the sum of £2500 for the endowment of a studentship in the Faculty of Arts as a memorial to her late father, Sir W. H. Stephenson. Miss Stephenson was cordially thanked for her offer, which was accepted.

A resolution has been passed by the St. Helens Corporation Gas Committee congratulating Mr. Samuel Glover on his election as President of the Institution of Gas Engineers. Recording the matter, a local paper remarks that Mr. Glover's work at St. Helens, during his long service as Chief Engineer, has been of the utmost value, and has brought honour and credit to the town and to himself.

The minutes of the Committee on Chemistry and Metallurgy which have been unanimously adopted by the Governors of the Royal Technical College, Glasgow, stated that Sir George Beilby, Director of the Fuel Research Board, was in need of a chemist of the first rank to act as organizer on the chemical side of the Fuel Research station at East Greenwich. He asked that Prof. Gray be lent to the department for a period of two or possibly three years; and the Committee recommended that this be done.

The appointment of Assistant Engineer to the Portsea Island Gas Company has been secured by Mr. T. Carmichael, who has been for nearly four years with the Nottingham Corporation Gas Department—first of all as Superintendent of the Eastcroft works, and latterly as Assistant and Superintendent of the Basford works, the largest of the three stations of the undertaking. Mr. Carmichael was, before going to Nottingham, for seven years with Mr. Alexander Wilson, of Glasgow. He served a five years' engineering apprenticeship with Messrs. R. Laidlaw & Sons, Ltd., and the Barrowfield Iron-Works, Ltd. In 1914 he was President of the Scottish Junior Gas Association (Western District).

It is a pleasure to be able to return once more to the recently announced "Birthday List," for the purpose of mentioning that Mr. William J. Jones has been appointed a Commander of the Most Excellent Order of the British Empire. Mr. Jones is Deputy Controller of Iron and Steel Production, Director of Refractory Materials, and President of the Ceramic Society. He is, however, most closely associated with the gas industry as Managing-Director of Messrs. Woodall & Duckham, Ltd., Messrs. Duckham & Cloudsley, Ltd., and the Woodall-Duckham Vertical Retort and Oven Construction Company, Ltd. For the past seven or eight years he has been a partner with Sir Arthur Duckham.

An interesting ceremony took place at the Wallasey Town Hall on Friday evening, when Mr. Enoch Hughes, who has been Chief Gas Inspector to the Corporation for the last fifty years, was the recipient of a handsome present in recognition of his term of service. Chief officials, officials, and members of the outside staffs were present. Mr. J. H. Crowther, the Gas and Water Engineer and Manager, who presided, said he had reason to know of Mr. Hughes' sterling worth. He never had any anxiety in connection with the way he would carry out his duties. During his long stay with the Corporation, he had made many friends, and was always respected. The Mayor (Alderman F. F. Scott), in making the presentation—which consisted of a timepiece, suitably inscribed, and a pair of Noritake vases of Persian design—said he had known Mr. Hughes for the whole period of his service with the Corporation. He was a man of high ideals and lofty character, and who was always a tower of strength and inspiration to those who came in contact with him. On their behalf, he had great pleasure in asking Mr. Hughes to accept the handsome gifts; and he was sure he would continue his useful work during the time of stress. Councillor W. S. Chantrell, the Chairman of the Gas and Water Committee, said the presentation was a fitting tribute, and showed his co-workers' great appreciation. It would be of interest to notice the advance of the gas undertaking in Wallasey since Mr. Hughes had been associated with it. In 1868, the population was 14,000; whereas now it is 87,000. The gas output at that time was 30 million c.ft.; to-day, the output is 765 millions. In 1868, the consumers numbered 1000, as compared with 20,000 at the present time. The price of gas in 1868 was 6s. per 1000 c.ft.; it has since been as low as 2s. The profits in 1868 were £380; whereas to-day they were £18,000. Several members of the staff also spoke in gratifying terms of Mr. Hughes's services.

Yorkshire Junior Gas Association.—To postal delay, doubtless inevitable under present conditions of stress, must be ascribed the fact that we are unable in this issue to recount the proceedings of the Yorkshire Junior Gas Association last Saturday, when more than fifty members visited the Huddersfield Gas-works and the works of Messrs. W. C. Holmes & Co., Ltd. The report will appear next week.

THE INSTITUTION SUBSCRIPTIONS.

Although the resolutions referring to the increases of the subscriptions of members and associate members were carried *nem. con.* at the recent annual meeting, there is much discontent abroad regarding them. A special general meeting is to be held on Friday to confirm them; but it is felt by those who object to the method by which the Council are desirous of making both ends meet that on this occasion it will be impossible for the rank-and-file of the Institution to be present in sufficient force to make their protest useful.

In the first place, it is considered that the resolutions were rushed through at the annual meeting, that no adequate opportunity was given to those who had anything to say upon the proposal to do so, and that it is incorrect to assert that the resolutions were carried unanimously. Regarding the last-named point, it is true that a considerable proportion of the members abstained from voting, and so it may be assumed silently registered their protest without openly opposing the Council, who are fully conscious of the fact that the increase is one which, in the circumstances of the Institution, is not generally regarded with friendly favour. We are afraid the dissenting members themselves sacrificed their opportunity at the meeting by hesitation in rising. It can hardly truthfully be said that the matter was rushed through; for if there had been any competition between the dissenting members and Lord Moulton as to whether they should get in before he could put the resolution, the former, we think, could have shown themselves equally sprightly with his Lordship. The fact of the matter is that after the remarkable Presidential Address, which appealed for more intensive action on the part of the industry in correcting the mistakes of the past and in pushing forward, there was no one present who cared to be associated as first speaker with a squabble or protest over such a matter as an increase of subscriptions. It is feared that it is too late now to revoke, anyway for this year, what has been done; but there is no reason why, if any member thinks good would result, notice of motion to rescind the resolutions should not be given for the next annual meeting. This is clearly a point for consideration by the objectors. Of course, it cannot be said that the advanced subscriptions are at all out of harmony with those of similar institutions; and it is very certain that the Institution cannot render any additional service to the industry without its income is supplemented. It is for the members to say whether the Institution in the past has rendered such service that it now merits an enhanced revenue. There are many members who think it has not.

There are members, too, who submit that with the relief from work which the National Gas Council, the British Commercial Gas Association, and the Gas Companies' Protection Association give to the Institution, which practically confines its operations to technical matters (of which there has been a microscopic display during the war), it has really just now little to engage its attentions; and, therefore, expenditure might well be curtailed. One member suggests that economy might be effected by stopping the outlay on the "Transactions" now that there is practically "nothing doing." There would be a break in the continuity of the volumes; but in view of the fact that the proceedings are reported in full in the Technical Press, the loss would not be a serious one. So far as we are concerned, any such course would not make a penny difference, seeing that the "Journal" gives its report and the cost of composing the type to the Institution without charge, and otherwise we have no concern in the printing of the volume. We doubt, however, whether it would really be to the future benefit of the Institution to send it into further oblivion during the period of the war; and the accounts show distinctly that it cannot carry-on supported only by the present subscriptions. Still, this is a members' matter; and those who feel aggrieved, and are dissatisfied with what took place at the annual meeting the other week, can put the question to the test at the next meeting, when perhaps experience will show whether or not the Council acted wisely in this particular matter.

AN OPPORTUNITY FOR THE GOVERNMENT.

Consultation with Joint Bodies Representing Capital and Labour.

There is a new and growing spirit in industry; and it finds expression in the recommendation of the Whitley report, that there should be co-operation between employers and employed by the formation of Joint Industrial Councils. This is no idle phase in the developments of the times. We have in all conscience had enough industrial strife to last our lifetime, and the history of it all will suffice to satisfy our successors that the facts justified the trial of new methods to secure the avoidance of the strife.

Co-operation has to come; and old employers who cling tenaciously to the opinion that their employees are merely part and parcel of the equipment of their establishments, and nothing more, will find that they will have to give way before what is surely in the making. But the best plan of effecting co-operation is an open question. Apart from this, we can regard with the utmost sympathy the manifesto of the Industrial Reconstruction Council, who have upon it names representative of capital, the professions, and labour. By co-operation, instead of division, there must be at all times, and in every industrial purpose, better

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advancement of national interests; and for this the Industrial Reconstruction Council is striving. The manifesto points out that the Government is at the present time interested in, and in touch with, almost every trade in the country; but the various departments have different methods of consultation with the industries. The Council consider that this is an opportune time for establishing on a sure foundation the principle of co-operation between capital and labour, by the Government adopting the uniform practice in all industrial and commercial matters of consulting only joint bodies representative of both employers and workpeople's organizations. We cannot, however, see that there would be any advantage in some matters in the departments entering into consultation with such joint bodies.

For example, in connection with the question of sliding-scale gas prices and dividends, or the long negotiations over the prices of sulphate of ammonia, and probably a dozen other matters in which products and finance have been mixed together, co-operation between capital and labour could not have availed very much in the settling of these questions. But in many matters, we fully believe that recognition and consultation would do more to educate our workpeople than by keeping them at arm's length; and also that employers have a great deal to gain from such co-operation—not only in respect of industrial peace, but of prosperity. Though agreeing with the principle, it must be pointed out that the manifesto gives no information as to the methods of co-operation to be adopted, which are important. Those who read the letter by Mr. Charles Carpenter, D.Sc., in the last "JOURNAL" [p. 558], will have seen that real co-operation has been in existence at the South Metropolitan Gas Company's works for nine-and-twenty years past. Many employers will be rather envious on reading in the letter that the Company's committee of workpeople have "recently reaffirmed their decision, that the financial position of the undertaking is such that they do not feel justified in asking, on behalf of the employees, for the additional 12½ p.ct. on wages, which has been generally given in many flourishing [?] industries." This is a practical illustration of a successful method of co-operation, derived from the gas industry.

ELECTRICITY SUPPLY MEMORANDA.

WHEN Mr. C. Orme Bastian puts his pen to paper on the subject of gas and electricity, he generally has something to say which, with clear conscience and scientific support, we can dispute. In a letter which has appeared in certain papers—"Engineering" among them—he makes what we regard as some very wild assertions. He is dealing with Lord Moulton's suggestion, in his recent Presidential Address to the Institution of Gas Engineers, as to charging for gas and electricity on the basis of the heat energy supplied. Mr. Bastian, who is a vendor of electrical goods, in effect points out how badly off electricity would be on this basis, seeing that, assuming that electricity is charged at only 1d. per unit, the price of gas, owing to its relative plethoric condition in regard to B.Th.U., could be carried up to 12s. 6d. per 1000 c.ft.—that is to say, it would require about 150 units of electricity to equal the B.Th.U. of 1000 c.ft. of gas of standard quality. The letter is headed "Coal Economy and National Health," which title strikes us as rather comical taken in conjunction with what follows. However, it is important to bear the title in mind, because in our opinion a more singular letter supporting the title it would be hard to find even among those of Mr. Bastian's inditing. He suggests that of the heat of the gas suplied "only a substantially-reduced proportion can be usefully applied to the needs of the consumer, whereas in a well-designed electric fire or oven, there is very small waste of heat." The careful contrast by his mode of expression to the detriment of gas and in favour of electricity will be noted. It will also be remarked, as a tribute to the cleverness of the man, that he only mentions the electric-fire and the electric-oven. He avoids the hot-plate, and says nothing of boiling operations and water-heating. We of the gas industry know a good deal about these things, and of the supersession of electric fires and ovens by gas-fires and gas-ovens. But the "fundamental difference" to which Mr. Bastian refers, he says, is due to the inherent necessity of maintaining a draught during the burning of the gas, which draught carries away, into the outside air, a varying proportion of the heat produced by the gas-flame. An indication of what the proportion is, under a given set of conditions, is not supplied by Mr. Bastian; but we will make him a present of the result of tests made with gas-fires, under a variety of circumstances, by men of scientific repute, which put the waste heat at 20 to 25 p.ct. of that generated by the combustion of the gas. Then follows a little piece of subtle writing, which must be carefully read in order that it shall not be misleading. Owing, remarks Mr. Bastian, to this inseparable waste in connection with gas-produced heat, it would "appear" that gas must always be sold at a lower price than electricity as measured by their respective gross heating values, because the net heating value of gas to the consumer is inferior to the net heating value of electricity. Mr. Bastian need not worry himself on this score, because gas has always been sold, and is likely to continue to be sold, at a lower price than electricity as measured by gross heating values, and, indeed, at such a price that the consumer gets a far higher net heating value at the price than he can do with electricity.

On Bastianisms.

Now let us go back for a minute. Mr. Bastian uses the words "Fuel Economy" in the heading to his letter. In the case of electricity, the dissipation of heat units takes place with full blast before the electricity consumer gets his heating energy. The "average" consumption of coal at the generating-stations in this country per unit of electricity produced is 4½ lbs.—not the 3 lbs. taken by Mr. Bastian, which is the exception rather than the rule. This means the expenditure of about 60,750 B.Th.U. to produce 3420 B.Th.U.—the value of the electrical unit. From the "fuel economy" point of view, this is a terrible waste of heat energy to secure so small a result; and it takes no account of the heavy losses of current *en route* from the station to the consumer. On the other hand, each pound of coal carbonized produces (taking a figure below the average shown by the last Board of Trade returns) 5½ c.ft. of gas, which, at the standard of 500 B.Th.U., means that approximately 12,500 B.Th.U. would be supplied in gaseous form by the 4½ lbs. of coal; and there then remains for the fuel market 2½ lbs. of coke of a heating value of about 13,000 B.Th.U. per pound, as well as tar (including all derivatives) and the ammonia for fertilizing purposes. From a fuel economy point of view, which is the better proposition? Mr. Bastian quotes the case of an electric furnace wherein he was able to maintain a certain temperature for a certain expenditure of fuel; and then he attributes to a gas-furnace a certain expenditure of heat units for performing the same work, from which he deduces that some 69,000 heat units were blown away "in warming the wide world instead of the furnace." What is the good of quoting "calculated" or hypothetical statements of this kind for gas-furnaces? What was the size of the gas-furnace used, whose make was it, and where were the tests carried out? It is no good submitting to real engineers vague assertions of this character without quoting "chapter and verse," and giving all the data on which to put the matter to test. We do not think that even Mr. Bastian, dogmatic as he is in his assertions, will dispute the authority of Sir Robert Hadfield, Bart., in respect of the heating of iron and steel. In an address which Sir Robert recently delivered, he remarked that it should be borne in mind that theoretically 1 KW.H. will heat 20 lbs. of iron up to about 900° C., and 112 KW.H. will heat 1 ton of steel to the same temperature. This at (say) 0·4d.—mark the price!—per unit means only 3s. 8d. per ton, *assuming all thermal losses can be prevented, which, of course, they cannot be.* To do the same work, 1 ton of iron and steel can be heated to the same temperature, he added, by the expenditure of about 850 c.ft. of gas of about 450 B.Th.U. per cubic foot. Consider this, and the fact that gas was before the war being supplied in various localities for industrial purposes at from 1s. to 2s. per 1000 c.ft. These are the statements of a practical man who deals with gas and electricity on an immense working scale, and not on the laboratory scale. But why did not Mr. Bastian proceed on the line along which he started, and endeavour to prove that the net heating value of gas to the domestic consumer is inferior to the net heating value of electricity for both room warming and kitchen use. He means, though he does not advance any proof, precisely what he says, because he concludes his letter with the remark: "I wish strongly to emphasize the view that the country is putting gas to the wrong purpose in using it for heating and cooking, and we are thereby wasting coal." We think the figures already given show that Mr. Bastian is assuming a posture for which he is not qualified, and cannot defend, when we consider the heat units provided by gas and the coke, together with the yields of tar and the ammonia from the utilization of coal at gas-works. Take gas-fires, for example. Mr. Bastian knows as well as we do that we can quote tests carried out by scientific men by the best known scientific means which show that modern constructed gas-fires will give to a room 70 to 75 p.ct. of the heat generated by the gas on combustion—nearly two-thirds of which will be in the form of radiant heat and the balance as convected heat. Taking gas at a pre-war rate of (say) 2s. 6d., 1d. will buy 33 c.ft., or (at the standard rate only) 16,500 B.Th.U., 75 p.ct. of which quantity will be 12,375 B.Th.U. A unit of electricity, assuming the appliances have an efficiency of 100 p.ct. (which is an absurd assumption), will only give the consumer 3420 B.Th.U., as against the 12,375 B.Th.U. actually imparted to the room by the gas-fire. Now what does Mr. Bastian really mean by his strong emphasis of the view that the country is putting gas to the wrong purpose in using it for heating and cooking, and that we are thereby wasting coal. The boot is actually on the other leg. It is the electricians who are so profusely wasting coal and its valuable contents to secure such a small result. Fortunately, Mr. Bastian does not rule the world; and the verdict of popular opinion and use is against him, because the public obtain more service value for money expended from gas for heating and cooking than they can do from electricity, besides much greater reliability, less cost of upkeep, range of temperatures, and more prompt service.

Fuel Economy and Fuel Values.

On the question of "National Health," which words are part of the title to Mr. Bastian's letter, he emphasizes the need of gas-fires being properly fixed. No one has any objection to them being properly fixed, because of the

"National Health" and Heating.

excellent efficiency which results. It is likewise necessary to properly fix electric-fires. There is a whole volume of rules applying to the fixing of electric appliances, designed to secure safety. Nevertheless, one frequently hears of trouble with them. Mr. Bastian is of opinion that the gas-fire flue-pipes should project at least 12 in. into the chimney. There is no particular hardship in this, though there are fires in existence without flue-pipes up the chimney, but with properly constructed vents and canopies, from which the application of the most delicate tests shows that there is no escape into the room of any products of combustion. As to rooms becoming oppressive and unhealthy, the properly fixed gas-fire is an aid to ventilation, just as is the coal fire. The electric-fire is not such an aid. When people are congregated in a room in winter time with doors and windows fastened, the ventilating work of the gas-fire is useful; but so far as the electric-fire is concerned, the atmosphere becomes stagnant, and stagnation means oppressiveness and unhealthiness. Therefore "national health" (besides national interests generally, including fuel economy) claims the properly constructed gas-fire, rather than the electric-fire, which, without it is fed by several units of electricity per hour in severely cold weather, becomes an abomination in the sight of the owners, owing to the physical discomfort which they are powerless to overcome, save at extraordinary expense. Those who, like Mr. Bastian, have electric-fires or electricity to sell may put up with the physical discomfort or expense, and may even try to induce other people to do the same. They have a commercial interest in the matter, which perhaps is worth some personal sacrifice.

Fiction in the Electrical Press.

Electricians fail to see certain things affecting the rationing order in their true light. One of them is that the 15,000 c.ft. of gas and the 800 units of electricity have nothing whatever to do with lighting. They are merely the allowances applying to the displacing of coal as fuel, and other "rations" are granted for lighting. Coal actually not used for heating purposes will require some other heating agent; and electric current used for electric lighting will neither cook food nor heat a room. Moreover electricity for heating purposes is very expensive in comparison with coal or gas. But one correspondent of the "Electrical Times," to whose wonderful grasp of the situation "Meteor" has given a prominent place in his notes, says the rationing appeals to him (his brain must be of a sharp-witted order) as a useful indication of the light that can be obtained for 1 ton of coal with gas at 20 candles per cubic foot (which, we may interpose, is a fair figure for ordinary inverted gas-burners) and electric light at 1·25 watts per candle power. He works out the simple fact that 15,000 c.ft. of gas will supply 300,000 c.p. hours, while 800 units of electricity give 640,000 c.p. hours. But at what relative prices. At war prices the gas would cost less than £3, and the 800 units £20 and upwards! So that between six and seven times the candle-power hours could be obtained by gas at an equivalent price. But how many electricity stations are realizing anything like 800 units per ton of coal used, seeing that the average for the country is rather below 500 units? A ton of coal is not reduced to the ash stage in the making of 15,000 c.ft. of gas. There is half-a-ton of coke for sale, which many electricity undertakings are glad enough to get hold of. There are also, as pointed out in a previous paragraph, the tar and ammonia, and the country is very largely relying upon the gas industry for maintaining its position in the war. Is it an impossibility for electricians to deal fairly with this matter? "Meteor" cannot be accused of want of knowledge; but even he takes the recent Brighton case in order to make a comparison on the basis of 350 B.Th.U. per cubic foot. We had imagined "Meteor" above allowing himself to be the victim of such paltriness, even though he can claim the support, of which he gladly avails himself, of "Mr. W. R. Herring, M.Inst.C.E., Past-President of the Institution of Gas Engineers," who is retained by the opponents of the gas industry. "Meteor," if he has read the report of the case, knows that the Brighton position is not a general, but an isolated one, and that, owing to the shortage of coal deliveries, the Company had to choose between facing a stoppage of the gas supply or sending out gas of lower calorific quality (which does not necessarily mean of lower flame temperature), maintained at a respectable pressure. The Admiralty, the Army Council, and the Ministry of Munitions have definite power to stop this sort of thing. Yet "Meteor" stoops to making (as he hopes) capital out of the case.

The Importance of the "Memoranda."

"Electricity Supply Memoranda" are not now so frequently attacked in the Electrical Press as formerly; but occasionally we observe with pleasure that certain representatives of our contemporaries disapprove of the close information of electrical doings and sayings which is supplied to the gas industry through these notes. "Electrical Industries" uses Mr. F. D. Marshall's recent communication to our columns [see "JOURNAL" for May 28, pp. 370, 381] for calling attention to our unrepentantness. Our contemporary gave first place to this in its issue for June 12, which is a good indication of the importance it attaches to the subject, and is an excellent reason why we should continue to keep the gas industry supplied with information and criticism concerning electrical affairs and contentions, including the attacks upon gas such as those dealt with this week.

SLIDING-SCALE COMPANIES AND THE SELECT COMMITTEE'S REPORT.

[CONTRIBUTED.]

WHENEVER before has Parliament received a report so contradictory and disappointing? To the first part of their reference, the Committee's reply is unanimous, and definitely affirmative; their response to the second part of the reference is unworthy of the first—not only is present relief not granted to any petitioning sliding-scale company, but worse.

Replies to the first part disclose seven important points; to the second, one further point. All of them call for quiet thought.

(1) The sliding-scale system has been a great success, and should be maintained in the future as the general principle upon which gas undertakings are managed.

(2) Standard price and standard dividend were fixed after inquiry in each case. No one, however, could possibly foresee the present abnormal conditions, and the effect which a war of this magnitude and duration would have upon gas undertakings.

(3) To the mention of the causes of increased price there is added "while certain aspects of Government control have contributed to the difficulties of the gas undertakings."

(4) Refers to consequential adverse effect of the increased cost of production and distribution upon dividends. The latter, it is stated, are in some cases payable below "standard," and in a few cases extinguished. The effect is admitted to be increasing in degree the longer the war lasts, without the likelihood of any substantial increase in secondary products income.

(5) Evidence proves some temporary modification of statutory requirements to be expedient in some cases; but the varying conditions of gas undertakings render it extremely difficult (if not impossible) to lay down one general rule affecting price and dividends which would be equitable to all companies alike. The Committee realize the importance of adjusting additional cost in supplying gas upon a basis fair and equitable to both consumer and shareholder.

(6) The increase in the price of gas is a matter of serious consideration, and the falling-off in dividends a matter of immense importance.

(7) Unanimous conclusion: "Some provision should be made for the temporary modification of statutory requirements with regard to price and dividend in the case of gas undertakings whose financial circumstances have been so seriously affected as to call for intervention."

(8) The greatest difficulty found by the Committee as to the terms and conditions of such modification, owing to the variety of gas undertakings and the different conditions applying in almost every case.

A table is given [p. 589] of petitioning sliding-scale companies (excepting one which under the recommendation obtains "relief" as a maximum-dividend company), bringing the position into focus so far as it concerns sliding-scale companies. Column 2 gives the standard price; Column 3, a conversion of one moiety of the standard dividend into pence per 1000 c.ft. sold. Adding both columns into No. 4, the result gives the price of gas at which the penalty of war cost ceases, and which Parliament is asked to accept as defining "relief." Column 5 gives the pre-war selling-price. Deducting this from Column 4, the result in Column 6 gives the incidence of war cost which must occur before the recommendation takes practical effect. Column 7 shows the war cost at the beginning of 1918, and is the admitted data on which the report is founded. Column 8 (the difference between Columns 5 and 2) includes any "neutral zone" allowance; but this allowance should be deducted to furnish the earning power for dividend payable above "standard" rate.

These pages, last week, deduced that the intentions conveyed in the first part of the report had been subjected to alteration some time during five private sittings, and which view seems to be borne out by Mr. Leon's apprehensive and irregular action, as well as by the tacit understanding that equal and substantial justice would be given all round, to say nothing of the general atmosphere in Committee towards the end of a thorough and laborious investigation. In what light can any intelligent mind view the report as a whole? Its points are incompatible with its recommendation. To become intelligible, the one or the other must be rejected. To accept both is to reduce the whole thing to sophism. If the Committee experienced difficulty in adopting a principle for the relief of a company, they found none in the case of a municipality, where maximum prices are to be extended "as may be necessary to pay the actual cost incurred for manufacture and distribution."

War cost, whatever it is, falls almost entirely upon manufacture and distribution, be the undertaker company or local authority; and, bearing in mind the close relationship between maximum price and standard price, and maximum dividend and standard dividend respectively, the philosophy governing the Committee's recommendation concerning gas undertakings the property of local authorities should be well noted. Standard dividend in the case of a sliding-scale company, it is submitted, is no less "actual cost"

SLIDING-SCALE COMPANIES

(Excluding No. 11 Ranking as a Maximum Dividend Company for Relief).

1	2	3	4	5	6	7	8
Company No.	Standard Price (Including any Amount Allowed as Neutral Zone).	Price of Gas which is Equivalent to a Moiety of Standard Dividend.	Price of Gas before Penalty of War Cost is Arrested.	Pre-War Selling Price.	War-Cost to be Suffered before Penalty of Incidence is Arrested.	War-Cost at Beginning of 1918.	War-Cost which would Occur before Standard Dividend Suffers Reduction.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1	4 0	1 8	5 8	3 6	2 2	0 6	0 6
2	3 9	1 8 1 2	5 5 4 11	2 4	3 1 2 7	1 0	1 5
3	3 6 (N.Z. 3d.)	1 8	5 2	3 6	1 8	0 11	nil.
4	3 3	1 3 0 10½	4 6 4 1½	2 4	2 2 1 9½	1 2	0 11
5	3 2	1 3	4 5	2 6	1 11	1 4	0 8
6	3 6 (N.Z. 2d.)	1 8	5 2	2 11	2 3	0 7	0 7
7	3 10½	1 2	5 0½	2 10½	2 2	1 3½	1 0
8	2 4 (N.Z. 3d.)	1 8	4 0	2 1	1 11	0 9	0 3
9	3 1	1 8	4 9	2 6	2 3	1 0	0 7
10	4 3 (N.Z. 3d.)	1 8	5 11	3 4	2 7	0 2	0 11
12	2 6	1 8 1 3 1 2	4 2 3 9 3 8	1 9	2 5 2 0 1 11	1 4	0 9
13	3 4	1 8 1 6 1 2	5 0 4 10 4 6	2 4	2 8 2 6 2 2	1 4	1 0
14	3 3 (N.Z. 3d.)	1 8	4 11	2 8	2 3	1 1	0 7
15	3 1	1 3	4 4	2 2	2 2	1 5	0 11
16	2 9	1 3	4 0	2 3	1 9	1 3	0 6
17	3 0	1 2 1 8	4 2 4 8	2 6	1 8 2 2	0 10	0 6
18	3 0	1 8 1 8	4 8 4 8	2 6	2 2 2 2	0 6	0 6
19	2 3	1 8	3 11	2 1	1 10	0 3	0 2
20	3 7	1 8	5 3	3 6	1 9	1 6	0 1

in war time than in peace time; the same remark applying with equal force to a local authority's interest and sinking fund.

Two important points are omitted from the report. First, that arrears of dividend may be made up in later years by a maximum dividend company, but not by a sliding-scale company; second, the cost to the consumer for the use of capital employed for his benefit, not to mention the Government's absolute control over the issue of new gas capital. Evidence shows 5½ p.ct. to be the average for new capital over the past fifty years in one case. Others similarly show low rates over very long periods; and these cannot be considered unreasonable by a Parliament which has already settled 6 p.ct. in the case of statutory undertakings and 7 p.ct. in other cases to be a fair pre-war return upon the use of capital, and will, and does, take the major part of anything over and above the 6 p.ct. earned in war time.

Then, in regard to "actual cost to the consumer," are we henceforward to regard it as a different thing where a municipality is concerned? If not, why should the principle of relief differ—the increase in cost affecting manufacture and distribution arising from the same cause? The case of each local authority is to have separate consideration by the Local Government Board; but the Board of Trade is to play the part of Herod towards the innocents. We have heard much of equity, justice, and a common principle. Is private gas capital to be swept aside, downtrodden, and confiscated, while, forsooth, electrical undertakings are to have Government subventions? Does Mr. Leon consider that gas undertakings are comparable with sheep, which, as Epictetus remarked, serve mankind "when they are shorn, and when they are milked, and at last when they have their throats cut"?

The Rt. Hon. W. E. Forster's remarks were never intended to bear the construction which is now sought to be twisted into them, for remember the cause for the present report, like the incidence of increased cost, arises out of a war which was never contemplated at the time when the words were used. Sliding-scale companies were to have an accretion to "standard dividend" in favourable circumstances, and lose it under adverse conditions.

If it is right for the Local Government Board to consider each case upon its merits, and afford substantial justice to all local authorities, can the Board of Trade in equity do less than add to or create a neutral zone in the cases of sliding-scale companies in which they consider relief expedient?

One's conclusion can only be that the war cost must, wholly or partly, pass on to the consumer; but equity forbids distinction between consumers.

At the meeting of the Council of the Institution of Municipal Engineers on Monday last week the following notice of motion was given by Mr. F. A. Pratley: "That it being desirable, in the opinion of this Institution, that municipal engineers should be represented by one strong body, with this object in view the Institution of Municipal and County Engineers be asked to appoint three of the members of their Council to meet three members of the Council of this Institution to discuss the matter, and to report later to their respective Councils."

MORE AND MORE COAL.

By "CRICKET."

THE above is "The Times" title to the Coal Controller's letter published last Thursday, addressed to Mr. Ashton and also to Sir T. R. Ratcliffe Ellis, respectively of the Miners' Federation and the Mining Association.

So far as it deals with the subject of obtaining a greater output of coal per miner in relation to the successful issue of the war, the letter is an admirable one. Especially is it admirable in the early part, where it touches upon coal being required to be cleaner from separable dirt and also the loss of coal mines in France. But when, in making up the category in order of merit for the national uses of coal, the list is headed with "Domestic Consumption," and actually gives "Munitions" fourth place out of six, it is time to make protest. Is there fire behind the smoke of rumour that undue influences are at work? If such is the case, it is high time the unprofitable plants feeding on the best soil of this Government allotment should be hoed out, and national plants allowed their proper share of nourishment.

Even placing public utility undertakings in the second place is not the correct position when the public utility embraces gas-works as well as water supply and electric supply. Gas-works are much more than public utility—they are the finest national assets. And why in the category "Domestic Consumption" should occupy a prior place is really unfathomable to any sensible man. The long list of out-and-out war materials derived from the distillation of coal which has appeared in several recent articles in the "JOURNAL" makes it quite clear that "Munitions" should have occupied the first place in the category, because, without these war materials, it would be impossible to win the war; and if "Domestic Consumption" is to be given the place of honour, it is drifting affairs well in the direction of losing the war.

The requirements as regards coal for gas-works should be entirely at the dictates of the Ministry of Munitions, the Admiralty, and the Army Council. There may possibly be an impression that gas-works are exploiting the war in their own interests. If there is any such impression, nothing is more uncharitable. There are no gas-works that have made a single penny profit out of explosive material derived from the distillation of coal. On the other hand, they have patriotically and cheerfully suffered monetary losses on this account; for it must be remembered that not only is the price for pure benzol and pure toluol controlled to much less than the equivalent price of petrol, but in the extraction of it a loss of gas per ton is sustained as well as a loss of revenue. The stripping of the gas for these high explosives has damaged the gas undertakings' business and their future, besides the fact that the price of gas has had to be increased from time to time to make ends meet. Unthinking people, immediately a rise in price is announced, accuse the gas undertakings of profiteering—forgetting altogether that, in the great majority of cases, the undertaking is subject to the "sliding-scale," and that the higher the price of gas the lower is the dividend, as well as the inclination to burn less gas.

Gas undertakings have been "willing horses"—they have used every effort possible to assist the Government in defeating the enemy; and they are now receiving more "kicks than halfpence." Meanwhile, as was pointed out in the article in the "JOURNAL" on June 11, entitled "Fuel and Lighting Ration Order," there are many trades absolutely unimportant to the State still drawing unrationed supplies of coal which should be turned to work of national importance, as well as the labour of a large number of men and women now employed in these trades. Although men of military age have been withdrawn from these unimportant trades, yet it is still possible for them to be acquired to carry on, and coal, transport, and labour employed to the detriment of nationally important work.

Undoubtedly gas undertakings have a grievance. Grievances in other directions, such as in a large body of workmen, find their vent in strikes, with the usual result that they get all they ask for. I am not in any way suggesting that gas undertakings should go on strike, because that would be foolish and thoroughly against the successful prosecution of the war, and is therefore unthinkable. They merely ask for just treatment in the matter of coal supplies in the national and allied interests, and should get it.

The new coal rationing scheme, which leaves it to the option of the householder, if he so desires, to take the whole of his coal allowance in raw coal, when automatically he will get no gas, and the fact that in the Controller's category "Domestic Consumption" occupies the first place, naturally leads one to put these two facts together and come to the conclusion that coal controlling appears to be largely in the interests of one section of traders, all because the importance to the State of the distillation of coal is not properly understood. Where coal is merely burned and no more useful war material than soot is recovered, I am one of those who consider that, by giving the gas undertakings such inadequate supplies of coal, it will lead presently to a very dangerous state of affairs altogether against the interests of England and its allies

The Coal Controller's letter should be of excellent use in gathering the supplies of coal needed. But why, when they are gathered, largely waste them by not using them to develop our resources for the greatest benefit? If the coal traders wish to assist their country in its dire necessity in the best possible way, they can do nothing better than employ their staffs, railway and

road wagons, and men in delivering their coal to gas-works, especially as they are in urgent need of it, in order that it may be converted into war material of the highest importance, and thus assist, rather than retard, the successful prosecution of the war. By doing so, they need not be nervous that their future will be in jeopardy, because the rationed coal will certainly not allow gas undertakings to expand their domestic supplies of gas. And, after the war, although the household coal contains more gas and residuals than the usual varieties of gas coal, yet if we all used household coal what would become of the gas varieties? After the war, the relative positions will therefore be restored. Meanwhile, the gas-works that are dangerously short of stocks can turn the household coal into war material of the highest national importance. By assisting the gas undertakings as described, the coal trades will be employing their staff and plant to far greater advantage to themselves than they are at present doing, because their railway and road wagons can be emptied at a quicker rate, do more journeys, and therefore be employed to assist in the success of the war to a far greater extent than at present.

The coal trades have the necessary staff, they know exactly where to procure the coal and how to transport it, and are entitled to their profits under the controlled prices. But, best of all, by delivering household coal to gas-works they will be dealing with a larger tonnage, on account of the expedition of unloading at gas-works; and thus they will be making a larger turnover, and consequently a larger gross profit. Then why not give every assistance to those who make the greatest national use of coal to defeat the enemy? Certainly, as regards coal supplies, "Munitions" should have first claim. English coal, if badly used, can easily lose the war for the allies; but if properly used, it can easily win the war. Which shall we do?

Gas for Asphalt Melting.

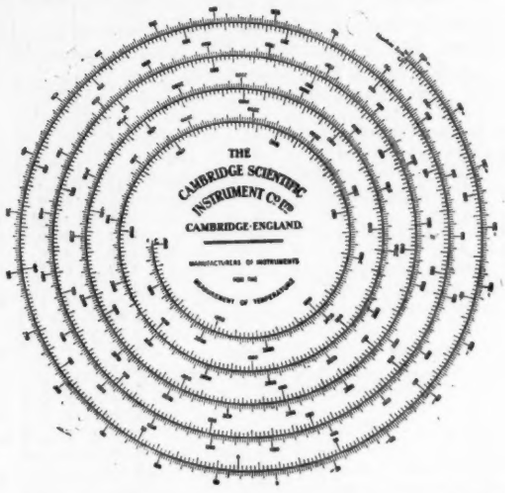
Some particulars of the work done by what is thought to be probably the only asphalt roofing company in the United States using artificial gas as their heating medium were given to the Illinois Gas Association by Mr. C. H. Kallstedt, of the Public Service Company of Northern Illinois, in a paper to which allusion has already been made in the "JOURNAL." Gas was installed about a year ago; and it has given great satisfaction. When oil, coal, or coke is used to heat asphalt for making roofing material, the combustion chamber or fire-box becomes red hot; and should the temperature be allowed to rise above 500° Fahr. (flash-point), the danger of fire-risk is serious. One of the advantages possessed by gas is that it has so lowered this risk that the roofing company have been enabled to effect insurance at one-quarter of the cost they previously incurred. The felt paper used for the roofing is put through several processes for which three tanks or stills are used. The paper is first saturated at a temperature of from 400° to 475° Fahr.; and it is then coated with asphalt at a temperature of from 300° to 400° Fahr., after which the grit, or whatever material is desired, is put on. Under each of the stills are fixed pipe-burners, with special type blast-heads, so that a maximum of 1200 c.ft. per hour is possible. From 6 to 8 in. above the burner heads, and about 6 in. below the bottom of the tank, a long baffle-plate is placed, which distributes the heat and protects the tank from injury. The flues are so arranged that as much of the tank is heated as possible; and a small fan furnishes all the air required. During October, 1917, there were 492 tons of asphalt and fluxes used; an average temperature of 400° Fahr. being maintained with a consumption of 203 c.ft. of gas per ton.

Use of Gas in Fish Canning.

To-day, it seems, everything that can be canned is treated in this way; but on the Pacific Coast a particular branch of this business forms one of the leading industries. The great growth of this work, and the special operations it entails, are described, in the "American Gas Engineering Journal," by Mr. F. H. Mugg, the Industrial Gas Engineer of the San Diego Consolidated Gas and Electric Company, who shows that material advantages have attended the use of gas in fish canneries. Drying is required so that when opened no water will be found in the can; and this is one of the most costly operations through which the fish must go. Then exhausting or pre-heating before sealing the can is necessary, so as to create a vacuum which draws in the heads of the cans and holds the fish firm; but the main reason for exhausting is that the cans may not bulge during hot weather or when put in the shop window. The old way of pre-heating was to run the cans through a long box filled with live steam; but on the San Diego Company being asked why gas could not be used for exhausting (thus obviating the moisture from condensation of the steam), they set to work designing the requisite equipment, which has proved altogether successful. Each machine is fitted-up with a sheet-metal exhaust-box 20 ft. long; and four drilled burners are used. Each burner is 5 ft. long and controlled by a separate valve, or all can be controlled by one valve. The running cost is very low; and the installation has given great satisfaction. The drying is accomplished by means of a battery of gas-furnaces, and a large multi-blade fan, which will deliver 450,000 c.ft. of air per hour at a temperature of 125°. The fish are spread on trays and carried 300 ft. on cables which move at the rate of 12 ft. per minute. The cables are encased, so as to form a tunnel through which warm air can be blown; and at one end of the tunnel the gas-furnaces and blower were installed.

A TEMPERATURE CONVERSION CHART.

A VALUABLE temperature conversion chart has been issued by the Cambridge Scientific Instrument Company, Ltd.; its object being to enable one at a glance to effect the conversion of temperatures from Centigrade to Fahrenheit, or *vice versâ*. The chart is in the form of a spiral, and is printed in black and red—the Centigrade side being in red, and the Fahrenheit in black; the figures being in clear characters, so as to be read at a glance. To say we hope we shall never be without the chart is a sufficient testimony to



our appreciation of it, and this, we have confidence, will be the verdict of anyone who sends sixpenny worth of stamps to Cambridge to cover the postage of the card, which is varnished, and measures 12 in. by 14½ in. On the vertical borders are supplied data as to standardizing points, melting and boiling points, temperature of saturated steam at various pressures, specific heats at normal temperatures, densities of water at various temperatures, thermal conductivities at normal temperatures, and proportions of mixtures for quenching and tempering baths. There is much that is useful in little space here, and all in handy form. Of the chart itself, we give a general idea by a reproduction of it on a much reduced scale.

Institution Amalgamation in America.

That the American Gas Institute, notwithstanding its valuable achievements, is amalgamating with the National Commercial Gas Association of the United States, to form the American Gas Association, is regarded by the "Gas Institute News" as pointing conclusively to the facts that its organization twelve years ago was not so final as its founders hoped, and that the claim that it has not satisfactorily covered the entire field of the gas industry is well founded. It should, however, be remembered that the formation of the National Commercial Gas Association, which occurred about the same time, itself largely accounts for the very fact that little effort was made to cover more than the technical field, in which, it is said, the excellent work undertaken and valuable results achieved have probably been greater in quantity and of higher quality than for any other gas association—though there are other important bodies doing similar work in America. It is recorded that the beginning of gas associations in the United States was between 1870 and 1880, when four of these organizations were formed—the New England Association, American Gas Light Association, Society of Gas Lighting, and Western Gas Association. Then in 1906 the American Gas Light Association, the Western Gas Association, and the Ohio Gas Light Association were merged into the American Gas Institute. The Associations named were composed almost entirely of technical men; and it was not until the National Commercial Gas Association entered the field that this particular branch of the subject was given the attention its importance deserved. One point which is emphasized is that neither of the organizations now amalgamating has been able to do all the work which it might, owing to lack of resources; so that a larger revenue should secure better results. Success is assured by the statement that 90 p.ct. of the active members of the Institute early recorded their approval of the amalgamation scheme.

Midland Association.—A summer meeting of the Midland Association of Gas Engineers and Managers will be held on Thursday, July 18, in Birmingham, when several of the departments of the Corporation gas undertaking will be visited.

Institution of Gas Engineers.—There is to be a special general meeting of the Institution in the Central Hall, Westminster, on Friday afternoon, at 3.30, for the purpose of formally submitting for confirmation the alterations in the Articles of Association passed at the annual meeting earlier this month raising the subscription rates.

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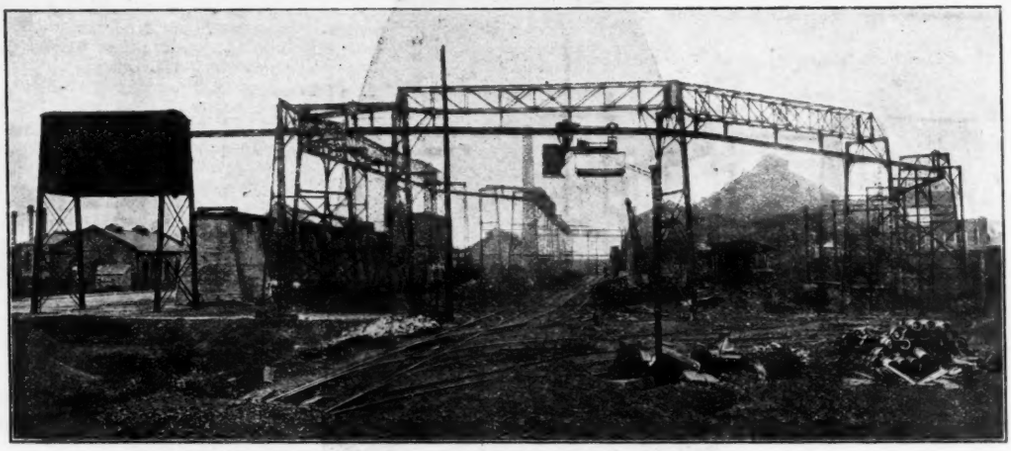

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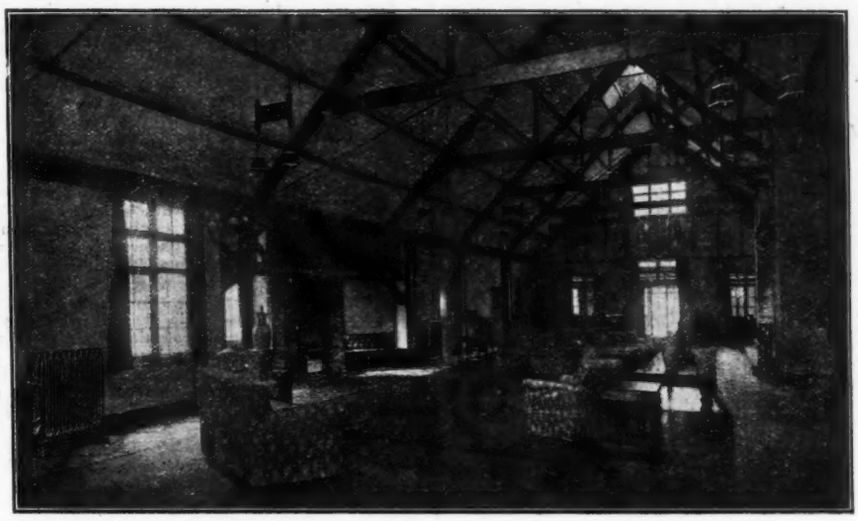
GAS IN AN AMERICAN OFFICERS' HOSTEL.

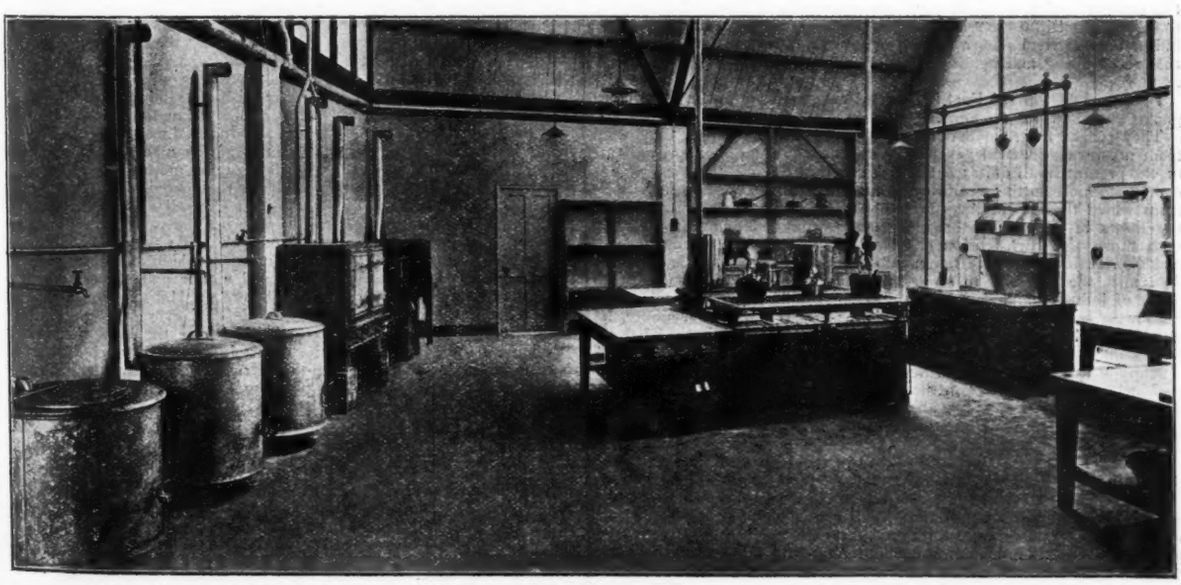
READERS who perused the details and sketches given in the "JOURNAL" for the 4th inst. of one portion of the gas equipment of the American Officers' Hostel—the "Washington Inn"—will find interest in the following particulars as to the gas installation by which the entire cooking for the establishment is to be carried out and the principal rooms in the building (the dining hall, the lounge hall, and the quiet room) heated. As was indicated at the close of our last article, the gas-cooking apparatus, and the gas-steam radiators and gas-fires, were made by Messrs. John Wright & Co., of Birmingham, and were installed by the Gas Light and Coke Company.

The gas-heating for the main part of the building—embracing the dining hall, lounge hall, and silent room—also the pergola covered-way, which forms an interesting feature of the central octagon, is by 46 "St. Andrew" 39 in. gas-heated steam radiators, all, with one exception, of twelve-loop size; and in each of the two larger apartments these are supplemented by a "Kenilworth" dog-fire of the largest width made (21 in.). The distribution of the radiators is as follows: Dining hall (51 ft. by 25 ft.), eight; lounge (78 ft. by 26 ft.), fourteen; forecourt of lounge, one ten-loop; quiet room (52 ft. by 24 ft.), ten; pergola covered way, twelve; engineers' workshop, one. The accompanying photograph illustrates the spaciousness, convenience, and good taste which characterize these apartments; and much ingenuity has been shown in the way in which the buildings have been erected so as to surround the trunks of the trees on the site without damaging them in any way. The efficiency of this heating installation may be judged from the fact that the makers have undertaken that in cold weather it will be possible to maintain a temperature of 70°.

In the kitchen, the gas-cooking-apparatus installation comprises a central range, having a battery of four "Bordo" ovens, three of these being for roasting and baking purposes, and the remaining one fitted up as a hot-closet for the warming of plates and dishes. The top of the central range is entirely covered by a boiling hot-plate, with an assortment of burners for general cooking purposes. For cakes, pastry, &c., a large confectioner's oven is installed, the special feature of which is the fact of its being double-cased and the oven externally heated. The carving-table is a 6-ft. "Sector," with carving recesses and covers, bain-marie, and overhead gear for raising and lowering the covers. The under part of the apparatus consists of a hot-closet for keeping food hot, and also for warming dishes. A two-compartment "Celt" steamer is installed for the cooking of vegetables and puddings. The "Celt" has the special feature of an automatic arrangement by which the level of the water is kept constant whatever is the amount of evaporation taking place. A "Cito" griller, mounted on a stand, provides ample facilities for grilling chops, steaks, &c., and for making toast. For vegetables requiring to be cooked by boiling, there are two 20-gallon "Infanta" boilers, fitted with wire baskets for convenience of withdrawing the food as it is cooked. Soup is provided for by a 16-gallon "Infanta" boiler, which in this case is water-jacketed, to avoid scorching the food. The number at present being cooked for is rather over a hundred; but it is contemplated that later on it will be something like double this figure. The apparatus installed is amply sufficient to deal with this larger number.



THE LOUNGE HEATED BY FOURTEEN TWELVE-LOOP WRIGHT'S "ST. ANDREW" GAS-STEAM RADIATORS.



THE KITCHEN FITTED THROUGHOUT WITH COOKING APPARATUS MADE BY MESSRS. JOHN WRIGHT & CO., OF BIRMINGHAM.

CORRESPONDENCE.

[We are not responsible for opinions expressed by Correspondents.]

Scientific Burner Production.

SIR,—Mr. Charles Carpenter, D.Sc., asks what test is applied to the assembled burner for general efficiency.

After the regulating injector has been tested for pressure and flame, the burner is assembled, put on a test bar, and submitted to a pressure varying from 3 to 5 in. water-column for shape of flame and cone. Periodically, these burners are taken from bulk and tested on the photometer for candle power and consumption. They are distributed all over the world for use under greatly varying conditions; and, as proof of their efficiency, I get nothing but satisfactory reports of them from nearly every engineer who places them in his district.

F. J. GOULD,
Chairman of the Bland Light Syndicate, Ltd.

29, *Little Trinity Lane, E.C., June* 19, 1918.

The following letter, in reply to the above, has been received:

SIR,—It is clear from Mr. Gould's letter that I must withdraw any suggestion of insufficient testing in the case of the burner manufactured by his Company; and I readily do so. I wish I felt equally certain his practice was universally followed, and that some unfortunate experiences with which I am familiar were exceptional.

I have known the Bland burner for some years, and have made a good many tests with it, although not recently; and, apart from being somewhat noisy, I consider it a very good instrument of its type. But my protest was intended to apply to the type as well as to its testing; and I took as my parallel the electric bulb. If we are to maintain our gas lighting, I contend that we must have a burner which needs only placing in position and then works right away, as does the electric bulb, without requiring at each point skilled adjustment of ejector and air passages. We shall then obtain the equal of the electric lamp in simplicity of use.

If, in addition, we can, by the tap on the fitting, vary the amount of light we obtain within very considerable limits, we shall have something the electric bulb does not give without considerable complication. I have had burners of this kind working for several years in the district of the Gas Light and Coke Company with complete success.

CHARLES CARPENTER.

South Metropolitan Gas Company,
709, *Old Kent Road, S.E.*15, *June* 21, 1918.

Further Reflections on Lord Moulton's Call.

SIR,—On p. 541 of your last issue, under the above heading, you put a series of questions as to how far the administrators and technical officers of the gas industry realize what they are up against when the recommendations of the Electric Power Supply Committee are placed on the Statute Book.

Many of my friends in the gas industry do realize what we are drifting to, and are continually asking: "What is the remedy"? They realize that the electrical industry is being carefully nursed, fostered, and encouraged, and can look forward to a prosperous subsidized future; whereas the gas industry is hampered by restrictions, defence of the Realm Orders, and red tape, and, after being driven to the verge of financial ruin, it is jibed at with a promise of financial relief which can only be described as funny.

These technical officers of the gas industry admit the utility of, and necessity for, a cheap electrical supply, as readily as the electrical members of the Coal Conservation Committee agree that the correct way to use bituminous coal is to carbonize it, and extract the bye-products. They also know that a cheap supply of gas, suitable for general purposes, is more essential than a cheap electrical supply; and that the bulk of the energy derived from carbonized coal would, from the national point of view, be more serviceable if distributed as gas than converted into electrical energy. They are aware that, for flexibility, an electrical power supply is advantageous; but they contend that for cooking and heating it is "nowhere," when a gas supply is available.

I write of the gas the Fuel Research Board are looking for, not town gas at 4s. or 5s. per 1000 c.ft.

They realize that, for driving our factory mills, a supply of power from a central electrical generating station would be an improvement on the present small units; but they know that the mill furnaces would contribute more to the wealth of the nation if they were heated by gas from which the bye-products had been extracted. They contend that the losses in a high-pressure gas supply would compare favourably with those of a high-tension electrical supply, when the transformer and distribution losses are taken into account. These friends of mine do realize the necessity to so order the manufacture of gas that the needs of industry and domestic life are supplied with gaseous fuel at the lowest possible cost; and they assert that, for national economy, it would be well for the cottager to use such gas for lighting, and thus relieve the electrical industry of unprofitable lighting customers.

Many of these officers, from their connection with small works, have been driven to the conviction that reasonable concentration of production is absolutely necessary; and they are convinced that extirpating uneconomical gas-producing stations would increase the stability of the industry. But parochialism prevents concentration.

The Rt. Hon. John Burns, speaking in the House of Commons on the "Financial Relief" Bills, expressed a desire for the concentration of gas-producing stations. He referred to the Coal Conservation Committees' report, and thought that "what was well for the electrical industry should be suitable for the sister industry." Many technical officers in the gas industry agree with him, and think that the progress of the industry would be accelerated if the President of the Board of Trade appointed a Committee "to consider and report what steps should be taken, whether by legislation or otherwise, to ensure that there shall be an adequate and economical supply of gas for all classes of consumers in the United Kingdom—particularly industries which depend on a cheap supply of fuel, light, and power for their development."

Such Committee could also deal with the supply of bye-products. The sooner it is appointed, the better for the gas industry, and the nation.

J. MOGFORD.

Gas and Electricity Department, Briton Ferry,
June 21, 1918.

Criticisms of the Report of the Gas Bills Committee.

SIR,—One, who much frequented Bolt Court before your day, remarked of a certain piece of mutton that: "It was as bad as bad could be. It was ill-fed, ill-killed, ill-kept, and ill-dressed!" A criticism equally sweeping and condemnatory might well be passed on the recent and ill-fated application to Parliament for the relief of gas undertakings from their statutory disabilities.

In a letter to you of March 15, 1917, I endeavoured to draw the belated attention of those responsible in such matters to the imminent menace to the interests of gas investors, and at the same time to advise that any relief sought should not find expression in excess of the standard rate of dividend. The proposition actually made was incontinent and involved—incontinent, because it sought more than it was prudent to justify; involved, because an operation of the sliding-scale restricted to a percentage of its own limits can hardly have been more than transiently intelligible to a Committee of laymen.

The form of the application does infinitely little credit to those responsible for it, and was unworthy of the splendid advocacy devoted to its support. If the result is the fruition of an association of gas interests for their mutual protection, the fewer we have of such concerted efforts in the future the better.

The situation, however, does not appear to me to be hopeless. The decision of the Committee is a recommendation, not a mandate; an opinion, not a judgment. It is only binding on future Committees to the extent to which the latter may voluntarily adopt its guidance. Unless my memory is at fault, after the finding of the Joint Committee on Gas Authorities (Residual Products), 1912, Committees of both Houses inserted clauses in various Acts inconsistent with the findings of that Committee. It, therefore, appears to me that each undertaking that finds its position intolerable in the conditions complained of should press its individual case upon Parliament, irrespective of the findings of this Committee, upon the principle that any general legislation may well be qualified by special and exceptional circumstances, and that the question in each case is as much one of degree as of principle. The gas undertakings affected may well assume the *rôle* of the Importunate Widow—a policy often as successful in parliamentary matters as in the scriptural instance.

In the meanwhile, gas companies who, without even having been consulted, have seen their interests vicariously sacrificed, will wonder how to protect themselves in the future against those who aspire to defend them.

A. M. PADDON.

4, *Brick Court, Middle Temple, E.C.*
June 20, 1918.

SIR,—The editorial observations on the report of the Select Committee on Gas Undertakings, in your last issue, are so admirable in all respects that I trust that every gas shareholder in Great Britain will be afforded an opportunity of reading them, and of thus realizing the gravity of the situation. As long ago as July 24, 1917, you forcibly dwelt on the oppressive conditions imposed on the gas industry.

All must entertain feelings of deep gratitude for Mr. Milne Watson's sustained and strenuous efforts. With a view to supporting him and the National Gas Council, I would venture to urge that the boards of directors and the shareholders of gas companies should be asked to participate in this momentous struggle. An aggregate and representative gathering of shareholders and directors held at Westminster before Monday, the 24th inst., might have had a marked and very favourable effect on the situation.

In the main, gas shareholders are unconscious of the danger that threatens their investments. Moreover, Sir, they are equally uninformed as to the scope and the value of the services rendered to the State by gas undertakings during the last four years.

With astonishment, most of us must have read that on the Select Committee "there were two members of the London County Council; and the Council were present before this tribunal as opponents." Comment is justifiable.* When the names of the members of the Select Committee were announced, why did not the members of Parliament identified with the gas industry challenge these particular names? The formal opposition of the London County Council was no secret. The incident is criticized now; but why were not the two nominations both criticized and resisted when it was possible to do so successfully?

My hope is that the companies' unanswerable case will be stated in the House of Commons with faith and vigour and success whenever the Select Committee's report comes before the House. On p. 542, you lay it down that the responsible officials of every gas undertaking ought to take immediate steps to bring before the local members of Parliament the injustice that the report inflicts upon an industry that is suffering so intensely through the war. Agreed, Sir, but think what thousands of shareholders might attempt and accomplish if fully informed and personally appealed to!

W. ALLARD.

Kingston-on-Thames, June 21, 1918.

SIR,—I have read with great interest and satisfaction your editorial note on the Commons Committee's report on the Financial Hardships of the Gas Companies; and I think it ought to be reprinted in pamphlet form and sent to every member of the House of Commons and the House of Lords. I have no doubt that Lord Moulton would, if he

* A correction in regard to this matter appears on p. 584 of this week's issue.—ED. "G. J."

were asked to do so, bring the matter up before the House of Lords, when it comes before them.

I should like to know who the two members of the Committee are, who are also members of the London County Council.* It appears to me that this entirely vitiates the report—if it be the fact. I cannot find in your list of the Committee names of any members of the London County Council as given in the London Directory.

June 21, 1918. CONSUMER.

In reference to the matter referred to by correspondents above, and to the letter of Mr. Charles Carpenter, D.Sc., which was reproduced in last week's "JOURNAL" [p. 558], Mr. A. L. Leon, the Chairman of the Public Control Committee of the London County Council, wrote in Saturday's issue of the "Daily Telegraph" as follows:

A letter recently appeared in your paper from Dr. Carpenter, Chairman of the South Metropolitan Gas Company, in which he states that my letter which you inserted on May 27 had for its object "to exercise an unfair influence on the Select Committee on gas undertaknge."

I wish to deny this in the strongest terms. To my mind, that would not have been possible. Dr. Carpenter's inference is a serious reflection on the honour of a body of independent and experienced men.

A further unfair reflection on this Committee* is made this week by the "GAS JOURNAL," the organ of the industry, which states in its leading artcle "that two members of the London County Council were members of the Select Committee." No London County Councillor was a member of the Select Committee.

The object of my letter is very plain. I wished to tell the London gas consumers what was being done without their knowledge. The "Daily Telegraph" rendered a service to the public by publishing my letter.

* See footnote to p. 592.

Board of Trade and "Financial Hardships."

SIR,—Since the report of the Select Committee on the Bills dealing with gas prices and dividends was published, the writer has felt more persuaded than ever that, whoever was originally responsible for the application to Parliament, and the action that the National Gas Council were in consequence forced to take, deserves some measure of blame for what has occurred.

The Board of Trade had the question in hand; and it ought never to have been removed from their consideration and assistance. While a Select Committee recommend for gas undertakings a method of treatment in the design of which commonsense, judgment, and (as you have put it in your articles) justice have no part, the Board of Trade are dealing with the maximum prices of electricity companies, so it is understood, in a liberal manner. The Board would have had to procure the sanction of Parliament to any modification of gas standard or maximum prices; but the manner in which the Board are proceeding to give maximum price relief to electricity companies, encourages the belief that there would have been more generosity in any recommendation they made to Parliament than has been the case through the Select Committee appointed to consider the ill-fated Bills—partly secretly introduced by two or three companies, and subsequently followed by a rush of others, in order that the whole question should be adequately considered. The "adequate consideration" has had an inadequate result—not through the quality of the case of the companies, but through either the incompetence or the bias of members of the Committee. The Board of Trade were much better qualified to handle the matter; and therefore the tactics of those who took a step opposed to the National Council, and uncomplimentary to the Board of Trade, are partly blameworthy for a result which relegates the gas industry to a place low down in the scale of suitable investment for private capital.

For the present no more gas capital for me.

STOCKHOLDER.

June 21, 1918.

Ebbw Vale Steel and Coal Company's Expansion.

A scheme is on foot for raising additional capital and adjusting the financial affairs of the Ebbw Vale Steel, Iron, and Coal Company, Ltd.; the proposals being the outcome of the policy of expansion and consolidation which has been pursued by the Board for many years past. The details were explained by the Chairman (Colonel Sir Charles Alen, V.D.) at last week's meeting; and the shareholders were told how the new capital is to be employed. The Chairman said that the programme of expansion includes an arrangement by which the Company control the adjoining collieries to their own, thereby removing competition and reducing the standard charges upon an output of something like 4,000,000 tons of the best Welsh coal raised in this country. They have augmented and equipped the steel and coke plants with the most up-to-date and advanced machinery; and every article produced will be manufactured from their own raw materials, and will be entirely British. With this large extension to the blast-furnace, coke oven, and bye-product plant, there is an enormous increase in the volume of waste gases, which are being turned to a most useful and profitable purpose—that is to say, the production of sufficient electric power to enable the Company to electrify the whole of their property, not only the iron and steel works, but the collieries in Ebbw Vale and the adjoining valleys. Work is now in hand, and nearly completed, which will connect the newly acquired coal properties with the central power station at Ebbw Vale; so that these mines, situated several miles distant, will derive their power from the waste gases available from the production of iron and coke. Therefore, the most economical and up-to-date use is being made of the Company's resources, with the profitable utilization of what at one time was entirely lost.

Increase in Price at Hornsey.—Announcement is made of an increase of 2d. in the price of gas at Hornsey. This will make the Company's charge 3s. 1d. per 1000 c.ft.

REGISTER OF PATENTS.

Photometric Apparatus.—No. 112,614.

SIEMENS AND HALSKE AKTIENGESELLSCHAFT, of Berlin.

No. 14,096; Sept. 29, 1917. Convention date, Jan. 12, 1917.

The patentees remark: It is known to employ in photometric apparatus, and as a standard or otherwise, light formed of components which have passed through colour filters, each provided with adjusting devices whereby the relative strengths of the different components may be varied. Photometry of different-coloured sources of light in this way has hitherto been attended with difficulty—no matter whether the tests were simply physiological by means of illuminated devices, by observation through colour filters of a comparison image according to the Lummer-Brodhun method, or by photometry in the region of the red and green rays according to the Webber method. The present invention, however, is designed to enable photometry of such sources of light to be as far as possible free from objection due to the physiological conditions.

The main feature of the invention is that the different-coloured components of the standard or comparison source of light are adjustable in such a manner that their total illuminating effect remains constant after each adjustment. To this end different-coloured filters, of equal absorption power, are adjustably arranged in the path of the rays of one of the sources of light which are to be compared, so that the sum of their free aperture is always constant. In photometric tests with the apparatus, the standard source of light produced or synthesized can be exactly adapted to the colour tone or shade at the moment of the source of light to be measured, without alteration of the actual illuminating power of the standard source of light, or *vice versâ*.

Manufacturing Gaseous Fuel.—No. 113,657.

ROSE, J. R., of Edgeworth, Penn., U.S.A.

No. 2983; Feb. 28, 1917.

This invention relates to a manufacture of gaseous fuel, and more particularly to the producing of a fuel such as is known to the trade as "carbo-hydrogen," and wherein hydrogen, as made by the electrolytic process or other processes, is injected into the mass of highly-heated refractory material in connection with another hydrocarbon (either gaseous or liquid) which may be injected by the hydrogen.

The invention has for its objects to produce a gas of this kind efficiently and economically, also to produce a gas which has special advantages in connection with, and which is particularly adapted for use in, the cutting and welding arts.

The inventor preferably realizes his invention by means of the apparatus illustrated in specification No. 113,585—see "JOURNAL" March 26 last, p. 591.

The patentee claims: "The process of producing a combustible fluid suitable for the purposes indicated, which includes the introduction into a generator of hydrogen and a liquid or gaseous hydrocarbon, supplying to the mixture thus produced in the generator a liquid hydrocarbon of different gravity or carbon content from that supplied with the hydrogen, and subjecting the mingled fluids to the action of heat sufficient to disassociate the hydrocarbon fluids and to produce, from the gaseous constituents thereof and the hydrogen, the desired gaseous compound."

Gas Producing and Consuming Plants. No. 114,474.

DREFFEIN, H. A., and FLINN, M. S., of Chicago, U.S.A.

No. 4873; April 4, 1917.

This invention relates particularly to plants in which a jet of combustion supporting gas is employed to induce a flow of gas produced in the plant, and which passes with such gas into the consuming or burner part of the plant. The object aimed at is to provide means for inducing a flow of producer gas to the burner part of the plant, so that the gases produced from bituminous coal can be utilized without the necessity of adding (say) a scrubber to the plant.

The invention, generally speaking, consists in flow-inducing means (as specified) in which the jet of combustion supporting gas is delivered through a nozzle placed within, and allowing peripheral emission of said gas from, the conduit supplying it. It also consists in means by which the combustion supporting gas issues from within, as well as from around, the delivery nozzle. There is a set of apertures leading to the interior of the nozzle and another set of apertures leading to the space between the nozzle and the conduit in which it is located; the two sets being alternately arranged and of equal areas, while the flow of gas through and around the nozzle is controlled by a valve operable to close one or other set of apertures.

Incandescent Gas-Burners.—No. 115,371.

CURTIS, W. M. M. & G. A. M., of Dublin.

No. 15,291; Oct. 22, 1917.

According to this invention, the burner tube has one end screwed into an air and gas mixing chamber provided with air inlet ports, and rotatably carried on an air-regulating plug adapted to fit on to the usual gas supply pipe. It is provided with an internal nipple adapted to pass the gas into the mixing chamber; the plug having spaced and circular projections, so that, on the rotation of the mixing chamber and burner tube to adjustably cover or uncover the air ports, the proportions of air and gas are adjusted.

On the body of the plug is a circumferential groove adapted to receive the ends of screws adjustably positioned in the mixing chamber, so that the latter is rotatable on the regulating plug or securely held on it.

Flexible Gas-Containers for Motor-Road Vehicles. No. 115,583.

SHORT, H. O. & A. E., of West Hampstead.

No. 15,390; Oct. 23, 1917.

The patentees point to the difficulties experienced with flexible gas-containers as now constructed, some of which are due to the deformation or falling-in of the containers as they become deflated, as well as the change from the shape in which they are constructed upon inflation taking place. Their means to overcome these difficulties is to provide a flexible container with an outer and separate enclosing case, into which air or exhaust gas from the engine is introduced at the requisite pressure; so that as the flexible gas-container deforms, due to the withdrawal of the store of gas, the outer and separate enclosing case maintains its original formation, while at the same time suitable pressure is maintained upon the gas containers, and the supply of gas therefrom is facilitated.

The outer and separate enclosing case may be supplied with air under pressure by being fitted with an externally projecting cowl (the open mouth of which faces in the direction of travel of the vehicle), it may be supplied with pressure air from a blower or fan driven by the engine, or it may be connected with the exhaust of the engine.

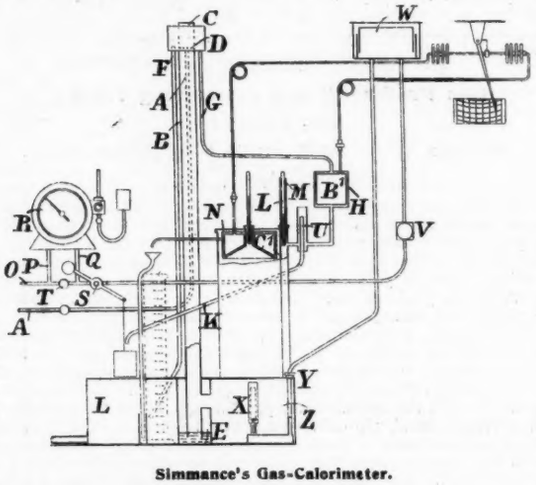
Gas-Calorimeters.—No. 115,915.

SIMMANCE, J. F., of Artillery Row, Westminster.

No. 7813; May 31, 1917.

A practicable recording calorimeter for checking the total heat value of a gas supply must, the patentee points out, show the variations of this value per unit time. If it were possible to burn a constant volume of gas per unit time, the record would give the information required with reference to unit volume of the gas. But since gas is measured volumetrically, and since, other things being constant, the relation of bulk to volume varies with changes in atmospheric pressure and temperature, it is necessary that the actual or observed volume of gas should be reduced to the volume which the measured or observed quantity would occupy at normal conditions of atmospheric pressure and temperature [N.T.P.]—such as, for instance, 30 in. barometer and 60° Fahr., or 760 mm. barometer and 0° C., or 760 mm. barometer and 15° C. It is further to be observed that, in the absence of special provisions, the volume of gas passing through an orifice at constant pressure will vary with variations in the specific gravity of the gas.

He claims to have invented a recording constant-flow gas calorimeter in which the standard volume of gas burnt per unit time is constant, notwithstanding that the volume of gas supplied per unit time varies owing to variations of temperature and pressure and to the varying specific gravity of the gas. For this purpose, he combines with the calorimeter burner a variable head of gas—the principle underlying the use of such a head being explained in patent No. 27,484 of 1911. In the present invention, the head is adjusted by means of gases of known specific gravity, so that the gas flowing through the container which creates the head issues from the burner orifice at a standard volume per unit time notwithstanding changes of temperature and pressure liable to occur in use and changes likely to occur in the specific gravity of the gas.



Simmance's Gas-Calorimeter.

The accompanying diagram illustrates the invention. A supply of water is connected with the pipe A which extends upwards to a small reservoir C, whence it flows over weirs (not indicated) in three streams; (1) Through fine perforations D in the periphery of the air-saturating tube B, in which the water flows as a thin skin down the inside surface into the tank E; (2) an overflow F; (3) a pipe G, which keeps full to overflowing a water-box H containing the cold bulb of the recording thermometer. From H the water flows through a chamber containing a constant level overflow pipe U, and through the pipe J to the calorimeter.

From the pipe J the water rises to an open head in a glass tube M, which may contain a thermometer; and thence it descends into the calorimeter (of known internal construction). It is here heated by the combustion of the gas on its way upwards to a third head—that is, to a level just below the calorimeter lid N—not air-tight but only sufficiently closed to prevent undue cooling of the warmed water. From this head it flows around the hot bulb of the recording thermometer to the outlet pipe, which either delivers to a funnel leading to waste or (when the funnel is turned aside) delivers to a measuring vessel for use when a test of the apparatus is being made.

The arrangement of three heads, at C, M, and N, each open to atmosphere, permits the escape of air in suspension in the water—the last (N) eliminating the bubbles evolved by heating the water. In this manner constant pressure of water at the entrance to the calorimeter and regularity of flow are secured.

Gas enters at O; and from this pipe is taken the supply P to the meter R, which is thus bye-passed—the gas returning to the pipe by the branch Q. Between the branches P and Q is a cock T, which when shut causes all the gas to pass through the meter and when open leaves the meter drum at rest—the pressure being equal in the two branches. Thus the meter need only be in use during a test; and evaporation of water from it, due to a constant flow of gas, is avoided.

To avoid damage to the apparatus due to continued burning of the gas when the water supply has been accidentally cut off, there is a cock S on the gas supply, the lever of which is weighted at one end to counterbalance a bucket suspended from the other end. The bucket receives the discharge through the pipe K from the overflow U and delivers it through a perforation in its bottom into the waste tank L. So long as the discharge is flowing, the bucket overflows and the cock S remains open; but should the discharge cease, the bucket empties itself and the weighted lever turns to close the cock.

From this safety cock the gas flows to the governor V to dispose of excess pressure, and thence upwards to the governor or container W, which creates a constant head of gas notwithstanding variations in the specific gravity of the gas and in atmospheric conditions. This governor is constructed as described in the 1911 patent, and is adjusted in respect to the load on its bell and its height above the burners, and with reference to the dimensions of the orifice of the burner. The pipe from the governor is connected with the burner X by a ground-in joint Y, which enables the burner to be swung out for lighting.

As the burner box Z is usually at a lower temperature than the outside air, the burner pipe is enlarged to form a sump to receive any water which may be condensed from the gas. Air for combustion enters at the top of the saturating tube B, the skin of water on the inner surface of which ensures the saturation of the air so that it enters the burner box saturated with water vapour at the temperature of the cold water whatever its hygrometric state before it enters the top of the tube B. The products of combustion mixed with excess of air pass up inside the calorimeter, and issue saturated with aqueous vapour at a temperature about 1·5° C. above the temperature of the inlet cold water temperature.

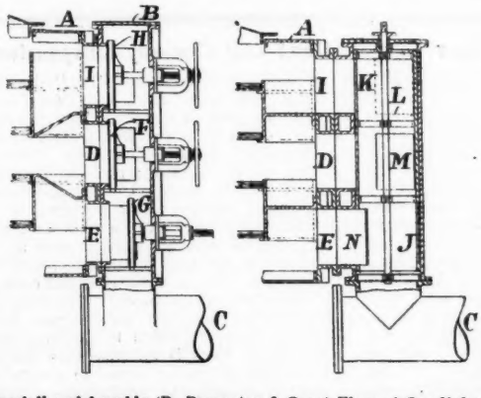
The recording thermometer comprises the closed chamber B (always immersed in the flowing cold water) and the chamber C immersed in the heated water in the calorimeter and of the same capacity as B. From each chamber a small tube communicates with an expansible diaphragm or aneroid. When both the thermometers thus constituted are at the same temperature, the pressure within them is the same. When, however, there is a difference of tmperature between the currents of water flowing round the chambers, the diaphragms are expanded or contracted, and, being rigidly connected, the difference between their movements is communicated to the pen coupled adjustably to the rod, and recorded on the rotating drum.

Valves for Controlling the flow of Gas through Purifiers, Condensers, &c.—No. 115,936.

ROBERT DEMPSTER & SONS, LTD., HORSFALL, J. E., and LUMB, H., of Elland.

No. 8914; June 21, 1917.

This invention refers to means applicable directly to individual purifiers for controlling, reversing, and bye-passing them, without interfering with their order of working—that is to say, means for controlling the flow within any purifier apart from the controlling valves which are common to the set of purifiers.



Horsfall and Lumb's (R. Dempster & Sons) Flow of Gas Valves.

The engraving shows a valve-casing having three disc-valves applied to the inlet end of a purifier, and a rotary valve or large cock having three openings. In each case it is assumed that a similar arrangement is employed at the opposite end of the purifier.

A is the body of the purifier; B, the valve-casing; C, the main inlet pipe; D, E, I, purifier inlets; F, G, H, disc-valves capable of closing such inlets. In the valve position shown, and with only the upper outlet valve at the other end open, the gas goes through the purifier from bottom to top; but with the valve H open, the valves F G closed, and only the lower outlet valve open, the direction of flow is reversed. With the inlet valves G and H and the outlet valve corresponding to the valve F open, and the other valves shut, the gas would pass in at the top and bottom of the purifier—the converging or re-united stream passing out through

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ROTARY WASHERS

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CENTRIFUGAL WASHERS

(Davidson-Liversedge Patents)

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SOLE PROPRIETORS:

THE RAMIE CO., Ltd.

(WARBURTON'S PATENTS),

Bredbury, near Stockport,

SCOTTISH DEPOT: 1 WEST REGENT STREET, GLASGOW.

the single valve F, which is open at the other end; and, *vice versâ*, with the inlet valve and the top and bottom outlet valves open (the other valves remaining closed), the stream bifurcates inside the purifier, and is taken out at the top and bottom.

In the second figure, a rotary valve spindle J is connected by spokes or spiders to a cylindrical valve K, around the wall of which are spaced out three apertures L, M, N. The valve is contained in a fixed cylindrical casing having three vertically arranged openings coinciding with the purifier inlets. By rotating the valve, any of the apertures can be brought opposite the corresponding purifier inlet—the other two apertures being cut off from their respective purifier inlets, and closed by the wall of the casing. Also, by varying the extent of the rotation, any two apertures in the valve can be set half-way open while the third aperture is entirely closed.

Manufacture of Coal Gas.—No. 115,997.

GOODALL, CLAYTON, & CO., LTD., of Hunslet, and SETTLE, T., of Leeds.

No. 12,834; Sept. 7, 1917.

In their specification, the patentees remark: In the manufacture of coal gas in vertical retorts it has already been proposed to pass steam through the coke while still in a state of incandescence—thus obtaining an increased volume of gas, diluted somewhat, but possessing the quality and heating value requisite to accord with the present parliamentary standard. In this invention, the operation of steaming is adopted; but it is carried out in a manner which is claimed will give greatly improved results.

A retort is steamed in a downward direction on the distillation of the coal being completed, and the water gas thus formed by the incandescent charge of coke is admitted after passing through a superheating box in the retort-setting to a newly charged retort in an upward direction—the admission being continued during the early periods of distillation, and longer if required.

The superheated water gas issuing from the incandescent mass of fuel in the first retort, and carrying with it such products of distillation as are left behind in the coke, is passed through the newly-charged retort, and, being "hungry" for the rich products of distillation contained in the latter, mixes with them and carries them off. These products, which are richest in the first three hours of distillation, are diluted by the water gas from the first retort; and in this manner an increased volume of thoroughly fixed and mixed gas of high heating value and flame temperature is produced.

When the operation of the second retort has proceeded as far as is desired the coal in it has been rendered incandescent, the steam is cut off from the first retort, and passed downward through the second retort, and thence through a retort freshly charged with coal after passing through the superheating box in the setting. The operation then proceeds as before. Any number of retorts may be arranged in series to operate in this manner—"each being again used in turn as circumstances require." The charges which have been burnt off and steamed are discharged, and when recharged the retorts come again into the cycle of operation.

A single superheating box for the water gas in the retort-setting will generally be found adequate for the requirements of a number of retorts; but it must be provided with separate inlet and outlet pipes, with valves connecting-up to the various retorts of the setting.

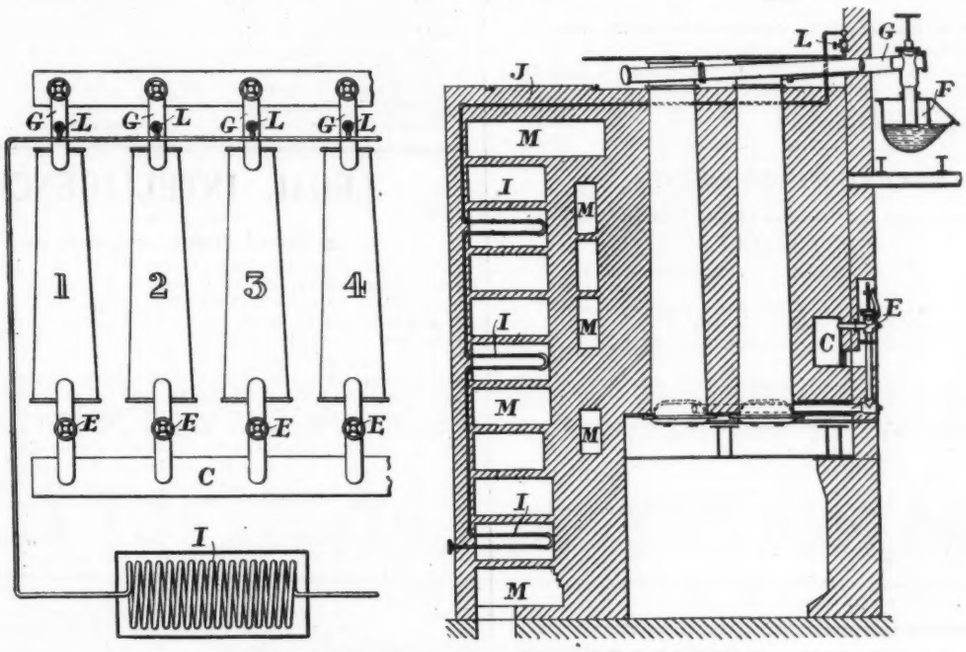
In practical trials with this method of gas making very satisfactory results are said to have been obtained, both in volume and quality of gas and in heating value and flame temperature and in residual products—"the temperature employed not appearing to prejudice the quantity or quality of the latter, which, under ordinary circumstances, are liable to suffer in proportion to the improvement in quality or volume of the gas."

By passing the water gas through a freshly-charged retort, a thoroughly fixed and mixed gas is, it is claimed, obtained.

The illustration shows four vertical retorts forming part of a setting arranged for carrying out the manufacture of coal gas in accordance with the present invention; and a cross-sectional elevation of a retort-setting as used in practice.

The vertical retorts (of which there may be any convenient number arranged in a brickwork setting) are numbered 1, 2, 3, 4. C is a highly-heated chamber communicating with all the retorts near the bottom by means of ducts furnished with valves E, by means of which the communication between the retorts and the chamber C may be opened or closed. The hydraulic main communicates with all the retorts by means of pipes G provided with valves by which communication between the retorts and the main may be opened or closed. I is a superheater or dryer for steam arranged in the brickwork of the setting; and J is a pipe communicating by branches with all the pipes G. L are valves for opening and closing communication between the steam-pipe J and the pipes G. M are ordinary flues in the brickwork leading to the chimney.

In operation, one retort (say, No. 1) is charged and partly burnt off. After a suitable delay, the valve leading from the retort to the heating chamber C is opened, and the valve leading from the chamber to another retort (say, No. 2) newly charged with coal, is opened—all communication between the chamber C and the other retorts being closed. At the same time superheated steam is admitted to retort No. 1 at the top, passes down through the charge, carrying with it such of the gases as remain in it into the chamber C. In this chamber, the water gas from retort No. 1 receives additional heat, and thence it passes into retort No. 2, traverses it in an upward direction, and



Settle's (Goodall, Clayton, & Co.'s) Vertical Retort Arrangement.

escapes into the hydraulic main—all the valves belonging to retorts not for the time in operation being closed. When the charge in retort No. 2 has been distilled long enough and retort No. 1 has been used-up, steam is admitted into the top of No. 2 as before, and No. 3 retort is connected up through the chamber C with retort No. 2, and so on throughout the whole system.

Drains for Hydraulic Mains.—No. 116,068.

ROBERT DEMPSTER & SONS, LTD., and BROOKE, R. M., of Elland.

No. 6422; April 16, 1918.

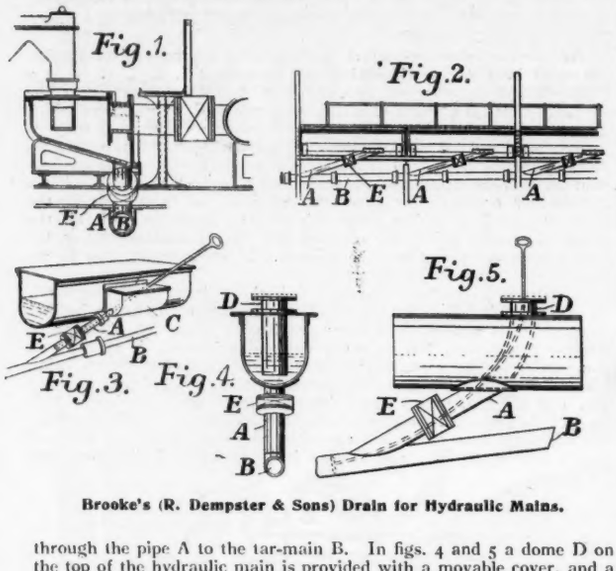
In hydraulic mains used in coal-gas manufacture where the draining connections between the hydraulic and the tar-main are at approximately right angles, the angles, it is pointed out in the specification, interfere with the easy flow of the tar, and are liable to cause obstructive accumulations at the junctions. With known arrangements, it is difficult to clear these obstructions without emptying both mains and discontinuing gas making while the cleaning caps are removed.

According to the present invention, the connecting pipes are placed at acute angles with both the hydraulic and the tar main, so that a cleaning rod can readily be passed through from the hydraulic or side lute or side box into the tar-main and push the obstruction past the next branch, and so on till the end of the tar-main is reached. In the case of hydraulic mains having a continuous lute and sloping bottom, the draining pipe can be led from the sloping bottom under the lute; and in other types of hydraulic a special box with a movable cover is provided (preferably on the side of the hydraulic main) for the purpose of enabling the pipes to be cleaned.

The accompanying diagrams [p. 596] show: Fig. 1, a continuously luted hydraulic main and a tar-main connected according to the invention; fig. 2, an elevation on a smaller scale taken at right angles to fig. 1; fig. 3, a perspective view showing a section of a plain hydraulic main with a box at the side as aforesaid; fig. 4, a cross section, and fig. 5 an elevation showing a dome with a removable cover on the top of the hydraulic main, through which the cleaning rod can be inserted.

In fig. 1 A is the inclined pipe connecting the hydraulic mains with

the tar-main B. In fig. 2, a series of inclined pipes A are shown. In fig. 3 the box C, at the side of the hydraulic main, is provided with a lid, which can be lifted off when it is desired to pass a cleaning rod



Brooke's (R. Dempster & Sons) Drain for Hydraulic Mains.

through the pipe A to the tar-main B. In figs. 4 and 5 a dome D on the top of the hydraulic main is provided with a movable cover, and a curved pipe is led from the underside of the dome so as to guide the cleaning rod into the drain pipe E.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for June 19.]

Nos. 9475—9909.

AKTIEBOLAGET INGENIÖRSFIRMA F. EGNELL.—"Gas-analyzing apparatus." No. 9509.

ANDERSON, W.—"Process for recovery of cyanogen compounds and sulphur from spent oxide." No. 9888.

CLEWORTH, A. B.—"Cooling, heating, &c., air, gas, &c." No. 9515.

COVENTRY, W.—"Incandescent gas burners." No. 9800.

COVENTRY, W.—"Apparatus for regulating supply of air and gas to burners." No. 9801.

CROXTON, F. W.—"Hydraulic gas-main and washer." No. 9616.

FOSTER, W. J.—"Gas-turbines." No. 9857.

HALPIN, J. A.—"Needle and regulating valves." No. 9776.

JOHNSON, W.—See Coventry. Nos. 9800, 9801.

KEITH, G. & J.—"Means for controlling supply of combustible mixture to internal combustion engines." No. 9725.

MUTHU, D. L. & L. P.—"Automatic valve mechanism for gas fires, cookers, &c." No. 9558.

WHATMOUGH, W. A.—See Keith. No. 9725.

YEADON, J. A.—"Vertical retort." No. 9623.

PARLIAMENTARY INTELLIGENCE.

HOUSE OF COMMONS.

Progress of Bills.

The Examiners of Petitions for Private Bills reported, in the case of the British Gas Light Company (Norwich) Bill, that the Standing Orders had been complied with; and the Bill was ordered to be read a second time.

The Wandsworth Borough Council have withdrawn their petition against the Wandsworth, Wimbledon, and Epsom District Gas Bill.

The Gas Provisional Orders Bill and the Gas and Water Provisional Orders Bill were read a second time, and committed.

The Pontypool Gas and Water Bill was read the third time, and passed, with amendments.

Financial Hardships Bills and the Committee's Report.

The adjourned debate on the 24 "Financial Hardships" Gas Bills (which was set down for Monday of last week) has been again postponed until to-day (Tuesday).

On the order being read for resuming the adjourned debate on the motion for the second reading of the Brentford Gas Bill,

Sir DONALD M'LEAN (the Deputy-Chairman of Ways and Means) said that, although the report of the Committee had been received, he understood that no decision had been come to with regard to these Bills by the Government Department concerned. Therefore, he moved the adjournment of their further consideration.

Sir FORTESCUE FLANNERY asked if he might represent to the House the very grave inconvenience to the promoters of the Bills caused by these continued postponements and delays? He did not intend to oppose the postponement; but he desired to place on record the hope that this would be the last postponement.

Sir D. M'LEAN replied that there were some questions on the paper direct to the President of the Board of Trade on this very matter.

Answering subsequently questions by Mr. ROWLANDS, Mr. GILBERT, and Sir FORTESCUE FLANNERY as to the action he proposed to take in connection with the report of the Select Committee [*ante*, p. 544],

Sir A. STANLEY said he hoped to make a statement before the Bills came before the House again.

A Bill Promised.

Referring once more to the matter yesterday [Monday],

Sir A. STANLEY stated that he proposed to introduce a Bill as soon as possible to give effect to the recommendations of the Select Committee, and to include in it provisions of a like nature with respect to tramway, electricity, and water undertakings.

London Sewage Disposal.

General CROFT asked whether the London County Council had had an offer of dealing profitably with the whole of the London sludge now discharged into the estuary of the Thames, by turning it into a fertilizer for the land; and, if so, whether it was intended to take any action.

Mr. HAYES FISHER said he was informed that during many years the London County Council had received from time to time suggestions for dealing with the London sewage in a manner different from that hitherto adopted. Recently it had been suggested to the Council that the whole of the sludge could be profitably turned into a fertilizer; but, in the opinion of the Council's responsible advisers, no scheme that would be at once practicable and economical had yet been evolved. The total amount of sludge sent from Barking and Crossness and discharged into the sea averaged about 2,500,000 tons annually, of which over 90 p.ct. was water.

Workmen's Compensation (Silicosis) Bill.

There was read a second time on Friday an agreed measure to provide compensation for workmen suffering from the disease known as fibroid phthisis, or silicosis of the lungs, which occurs among men engaged in the mining and quarrying of ganister rock and the making of silica bricks. These cases have not previously been brought within the Workmen's Compensation Act, owing to special difficulties connected with the disease, which have now been overcome. The measure is intended to be permanent until the disease disappears.

LEGAL INTELLIGENCE.

An Altered Protection Certificate.

At the Manchester City Police Court, last Tuesday, John A. Brown, of Lower Broughton, who up to recently was employed as a steam-wagon driver by the Middleton Corporation Gas Department, was charged with having in his possession a military service protection card which he had altered for the purpose of evading Army service. He was alternatively charged under the Military Service (No. 2) Order, 1918, with not having notified the authorities of his change of employment. Sergeant Ledicott said he arrested the man, and charged him with unlawfully altering a protection certificate issued to the Middleton Corporation Gas Department, with intent to avoid military service. Defendant left the employ of the Middleton Corporation, and went to work elsewhere. This was a variation of the exemption conditions granted by the recruiting authorities. Had defendant still remained in the service of the Middleton Corporation, his exemption would hold good to-day. Defendant had not resided at home since leaving the employ of the gas department, but had moved about from place to place. Brown had not altered his name or occupation. Defendant said he had never received any calling-up papers. He could not, therefore, be an absentee. Mr. A. G. W. Provart, on behalf of the National Service authorities, said there was no doubt the protection certificate was issued to the Middleton Corporation Gas Department to protect the man's particular employment. By leaving them, he automatically became liable for army service. Defendant had committed an offence under the Military Service Act by not returning the exemption card when he left. In other words, he wrongfully continued the protection elsewhere than the recruiting authorities permitted it. The Chairman ordered Brown to be handed over to the military, and fined him 40s.

Dublin High-Pressure Gas Case.

In the King's Bench Division of the High Court of Ireland, before Mr. Justice Dodd, the case of the Lights o' London Company, Ltd., against the Alliance and Dublin Consumers' Gas Company, and a counterclaim, were disposed of. The claims arose in respect of contracts alleged to have been made between the parties in respect of the installation of machinery and plant in connection with a high-pressure gas system. The plaintiffs contended that they had arranged, through their Mr. Docking, with the defendants' Distribution Engineer (Mr. Cotton) that they should, for the mutual advantage of both Companies, endeavour to instal high-pressure systems in the premises of various large companies in Dublin; and that it was arranged that defendants should do the local piping and connection work in cases where there was a trial or contract, and in the event of a free trial parties should bear their own loss. In cases where there was a payment of a fixed amount for the trial each party should pay a proportionate share of the outlay; and where a contract resulted, the defendants should be entitled to 10 p.ct., *plus* the cost of their work. The defendants contended that they were entitled to be paid 10 p.ct., *plus* the costs, in all cases, whether or not any payment was received; and they counterclaimed for work done by them, *plus* the 10 p.ct., in respect of all cases coming under the various headings referred to. They claimed a balance in their favour of £78. The proofs consisted mainly of correspondence, which was voluminous, and the evidence of Mr. Docking, on behalf of the plaintiffs; and correspondence and the evidence of Messrs. Cotton and Gray, on behalf of the defendants. Judgment was given for the plaintiffs for £107 over and above all credits in respect of the amount claimed in each case where money was received for work done and machinery supplied; and defendants failed in their counterclaim in respect of the free trials and cases where fixed amounts were received for the trials.

MISCELLANEOUS NEWS.

THE NEW FUEL AND LIGHTING ORDER.

Interesting details of the new Household Fuel and Lighting Order were given at the conference of the Institution of Municipal and County Engineers on Friday, by Mr. E. WILLIS, Surveyor and Coal Overseer of Chiswick. Mr. Willis had prepared a paper on the 1917 Order; but, in view of developments, he arranged a series of notes to bring forward the present position.

It will, of course, be understood that what he had to say was subject to any alterations that may be made in the Order, which had not then made its appearance in the "London Gazette." The Order itself, he said, comprises upwards of a hundred pages of closely typed material, with explanatory memoranda. It is anticipated the Order will be in operation on July 1, but the first 14 days will probably be spent in circularizing the Authorities affected, and by sending the necessary forms and information for putting the Order into effect. After this date it is hoped that the Controller's representative will visit all the large centres and organize meetings of Fuel Overseers whereat difficulties may be considered, and as far as possible, smoothed away. Some of the more interesting of the notes to "JOURNAL" readers are reproduced in full; while the others are briefly touched upon.

THE SCOPE OF THE ORDER.

This requires little comment, it being intended to apply the Order to all Local Authorities throughout England and Wales, and in addition to extend the original Order, which related to coal and coke only, to include gas and electricity used for heating, cooking, and lighting purposes, in connection with any house, building, or other premises to which the Order applies. (Note.—Industrial purposes will probably be dealt with in a later Order, but where connected with dwelling-houses it is assumed to come within the operation of this Order.)

ALLOWANCES FOR FUEL AND LIGHTING.

For every additional room one ton, until a maximum of 20 tons is reached; and thereafter any additional allowance not exceeding one ton per room shall be at the discretion of the Local Fuel Overseer. The three scales apply to three separate areas, (A) including Lancashire, Yorkshire, and neighbourhood, (B) including Norfolk to Monmouthshire and the Metropolitan Fuel area, &c., (C) including Berkshire, Cornwall, and the principal southern counties.

An important concession has been here given, that where the number of people in a house of less than twelve rooms exceeds six, the scale allowance shall be increased by one ton.

This table has been modified, and is as follows:

Where the Number of Rooms Occupied is	The Fuel Allowance for the Year shall not Exceed—					
	A.		B.		C.	
	Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.
In any flat or tenement or part of a dwelling-house in separate occupation—						
Not more than 2	3	10	3	0	2	10
" " " 3	4	0	3	10	3	0
In any dwelling-house, or in any flat or tenement or part of a dwelling-house in separate occupation exceeding 3 rooms—						
Not more than 4	5	0	4	0	3	10
" " " 5	6	0	5	0	4	0
" " " 6	7	0	6	0	5	0
" " " 7	8	0	7	0	6	0
" " " 8	9	0	8	0	7	0
" " " 9	10	0	9	0	8	0
" " " 10	11	0	10	0	9	0
" " " 11	12	0	11	0	10	0
" " " 12	13	0	12	0	11	0

The next clause gives the factors for conversion of fuel into coal, gas, or electricity; and are set forth as follows:

In calculating the prescribed quantity:

(*a*) Anthracite shall count as fuel at the same rate as ordinary coal.

(*b*) Three tons of coke shall only count as two tons of fuel, and so in proportion for other quantities.

(*c*) Briquettes not sold by weight and not exceeding 2½ lbs. each in weight shall count as 1000 to the ton, and so in proportion.

(*d*) 15,000 c.ft. of gas shall count as one ton of fuel.

(*e*) 800 Board of Trade units of electricity shall count as one ton of fuel.

The quantity of fuel to be taken as gas and/or electricity must be calculated to the nearest quarter of a ton.

The allowance of fuel to be taken as coal shall not be less than 2 tons 10 cwt., except with the previous assent of the Local Fuel Overseer.

Any quantity of fuel allowed additional to 20 tons may be required to be taken either wholly or partly as coke.

The scale for lighting allowances to dwelling-houses is a fairly liberal one, and is as p. 598—either material being optional.

Where gas and electricity are both used for lighting, the consumer may continue to use both on one ration only; the conversion factor being 750 c.ft. of gas, equal to 10 Board of Trade units, and *vice versâ*. The foregoing light allowance may not be converted into fuel. Quarterly proportions are to be taken in the ratios of one-third of the total for either winter quarter, and one-sixth of the total for either

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Where the Number of Rooms Occupied is	The Lighting Allowances for the Year shall not exceed	
	Either Cubic Feet of Gas.	Or Board of Trade Units of Electricity.
1, 2, or 3	7,500	100
4, 5, or 6	11,250	150
7, 8, or 9	15,000	200
10, 11, or 12	18,750	250
13, 14, or 15	22,500	300
16, 17, or 18	26,250	350
19, 20, or 21	30,000	400

summer quarter—*i.e.*, the maximum quarter or summer half year must not exceed one-third of the year's supply.

As in the original Order, so in the new Order, will additional allowances of fuel be granted for similar reasons to those set forth in the paper.

Much more detail is set out in connection with special assessments for fuel and lighting, which are now largely decentralized and thrown upon the Local Fuel Overseer.

Provision is made for appeals from the decision of the Local Fuel Overseer; and a special clause is inserted with respect to "Miner's coal."

Local Fuel and Lighting Committees.

This part of the Order deals with the appointment, duties, and functions of the Local Fuel Overseer, and the Local Fuel and Lighting Committees, if and where appointed.

One of the most important sections of the Order requires the co-ordination and regulation of agreed facilities for securing the supply and delivery of coal in the most economic manner, and with the least risk of failure. The powers given by the new Order are very much stronger than in the old. The Local Fuel Overseer shall act with the advice and assistance of the gas and electricity representatives in the first instance in dealing with complaints or troubles under this heading.

Coal Distribution Agencies.

Within 28 days of the date of the Order coming into effect, every coal merchant or distribution agency must be licensed by the Local Fuel Overseer for the district. Provision is made for refusing to licence persons not dealing in coal prior to Jan. 1 last. An important provision is that licensed coal dealers shall not obtain supplies direct from a colliery or through a factor without notice to the Local Fuel Overseer; and the sale note to such dealers must be produced on request to any consumer. This provision also applies to trolleymen, &c., and thus enables the consumer, or Local Fuel Overseer who has similar rights, to check abuses in regard to the quality of coal.

Procedure.

This part of the Order has been stiffened materially, and has also been necessarily added to, in consequence of additional duties thrown upon the Local Fuel Overseer under the new Order. No person shall sell, or in any way obtain fuel and/or lighting for consumption unless he has complied with the procedure laid down in the Order. This may be briefly stated as follows:

The consumer applies to the coal merchant (or Local Fuel Overseer) for an application form. On this he sets down his requirements for fuel and light, and shall sign the same. This will then be sent to the coal merchant, who must signify his acceptance by signing the same, or, failing acceptance, must return the application to the original consumer. It will be the coal merchant's duty to check consumption by certifying as to the correctness of any particulars given by the consumer within his knowledge, and particularly as to the quantity of coal and/or coke acquired since May 1 last by such consumer; and if he cannot agree that the information is correct, it will be his duty to state so thereon. But he should not alter the application or in any way solicit the consumer to requisition more coal or coke. The application, when completed, should be sent to the Local Fuel Overseer not later than twelve weeks from the date upon which the Order comes into effect. After such date the Local Fuel Overseer shall be under no obligation to accept an application unless he is satisfied as to there being sufficient reason for delay. Within seven days the Local Fuel Overseer shall cause a requisition for fuel and lighting to be issued to the consumer; such requisition providing separately for the acquisition of coal, coke, gas, and electricity, and the consumer shall allocate in what form and proportions he desires to take his fuel and lighting allowances. The allowance for gas or electricity for lighting shall be added to, and combined with, the allowance of gas and electricity for fuel; and the consumer may use such combined or total allowance either for fuel or lighting, as he may think fit.

A requisition shall relate to a period of twelve months from the 1st of July of any year, or such part of such period as there shall still be to run at the date of the requisition.

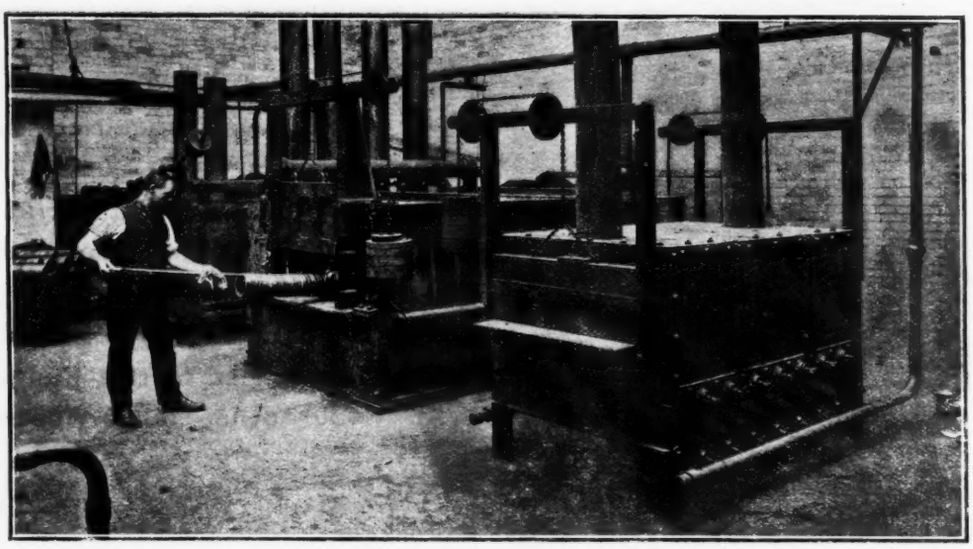
Requisitions shall be returned to the Local Fuel Overseer within fourteen days of their issue. Failure to return, as well as duplication of requisitions, shall be an offence under the Order, except with the consent of the Local Fuel Overseer.

All applications and requisitions shall be treated as private and confidential; and special forms shall be necessary for additional allowances, including variation of requisitions and transfer of certificates, which shall only be allowed at the discretion of the Local Fuel Overseer. Neglect to give notice of removal has been made an offence under the Order.

Clause 50 deals with the registration of small consumers, and is as follows:

> Every person requiring for consumption in any premises coal not exceeding 1 cwt. at one time, or a total quantity not exceeding 2 tons 12 cwt. in any period of twelve months, or such further

Gas in War Time Industries



No. 6—Shell Driving Bands.

The process illustrated is that of Annealing copper shell driving bands by Gas. This constitutes but one of the numerous operations performed by "Richmond" Furnaces in the process of shell production.

THE RICHMOND GAS STOVE & METER CO., Ltd.,
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quantities as may be determined from time to time by the Controller for any district, gas not exceeding 7500 c.ft. in any quarter, or 22,500 c.ft. in any period of twelve months, and electricity not exceeding 40 Board of Trade units in any quarter, or 120 units in any period of twelve months, may be required by the Local Fuel Overseer, with the assent of the Local Fuel and Lighting Committee, to state the name and address of the registered coal merchant or licensed coal dealer from whom he intends to purchase or otherwise acquire the coal, irrespective of the quantity required; and it shall be an offence in that event to purchase or otherwise acquire coal from any other merchant or dealer than the one stated, without the previous assent of the Local Fuel Overseer. In this connection, such additional checks upon the sale or distribution of coal or coke in small quantities, being 1 cwt., or distribution of coal in small quantities, being 1 cwt. or less at one time, including a system of coupons, may be introduced as the Controller may, at the request of the Local Fuel and Lighting Committee, determine.

DUTIES OF CONSUMERS.

These are set forth in the new Order very clearly, but are not materially different to those in the original Order, except that, of course, the duties are somewhat more stringent by reason of gas and electricity being included therein.

DUTIES OF COAL MERCHANTS AND DEALERS.

These are very similar to those in the original Order.

DUTIES OF UNDERTAKERS OF GAS AND ELECTRICITY SUPPLIES, AND OTHER CLAUSES APPLICABLE THERETO.

This part is entirely new, and does not bind the undertakers to accept certificates for new or increased supplies. It also gives relief from the obligation to supply, which is a very important point to remember. The proper records and returns shall be kept and be accessible to the Local Fuel Overseer; and returns of quarterly meter readings should be made to him, and any excess consumption noted thereon.

The Local Fuel Overseer must be consulted before any new supplies for either lighting or fuel are permitted; and it shall be an offence to proceed with these without his consent.

Where consumers neglect to give notice of removal, they shall be responsible for gas and electricity shown by the next meter reading after removal.

The undertakers are empowered to maintain reserves of coal for the purpose of their undertakings; and in the event of insufficient stock, the Controller may limit the supply of gas or electricity.

SALE OF COAL.

The Local Fuel and Lighting Committee may from time to time, with the approval of the Controller, determine the maximum prices; and the methods for arriving at such prices are set forth in detail in the Order.

ENFORCEMENT AND PENALTIES.

Either the Controller or the Local Fuel and Lighting Committee may prosecute for offences against the Order as offences under the Defence of the Realm Regulations. There are certain clauses for the readjustment of coal and coke where gas or electricity is consumed in excess, and alternative procedure for minor infringements of the Order, as well as power to cut off consumers' supplies. But these have not been yet definitely settled by the President of the Board of Trade.

MISCELLANEOUS.

Power is given under this section to enter any premises for inspection, and the Retail Coal Prices Order of 1917 and Part II. of the Lighting, Heating, and Power Order of 1918 are practically repealed when the present Order becomes operative.

LONDON COUNTY COUNCIL AND THE STATUTORY PRICES INQUIRY.

Report of the Public Control Committee.

The *agenda* for to-day's meeting of the London County Council, which came to hand yesterday morning, contains a long report of the Public Control Committee on the subject of the Select Committee on Gas Undertakings (Statutory Prices). In the first place, some account is given of what transpired at the inquiry; and to this is added a statement of the findings of the Select Committee. The final portion of the Public Control Committee's report is in the following terms:

We have carefully considered the general effect of the Committee's recommendations; and we think that, from the point of view of London, they may fairly be considered satisfactory in the public interest, and that they fully justify the position taken up by the Council that, having regard to all the relevant circumstances, no case had been made out for an alteration of the sliding-scale to meet the existing conditions of the London Companies.

The proposals in the Bills of the five London Companies, if they had been adopted, would have involved additional dividend payments in 1918 aggregating to £415,000, and a corresponding burden on the consumers, which would have been equivalent to an addition, on the average, of nearly 2d. per 1000 c.ft. to the price of gas in London. A still larger burden would have resulted if the price of gas should rise further. The standard prices, standard rates, and the authorized rates of dividend payable by the various companies, on their ordinary capital

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have done in the WAR

¶ Placed (since 1915) their Works at the entire disposal of the Ministry of Munitions.

¶ Enlarged their Works and increased their Plant to cope with the requirements of the Government.

¶ Progressively increased their output of important National Work.

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Moreover, all this has entailed reduction of profit

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as converted, on the basis of the present prices charged for gas, are as follows:

Company and Stock.	Standard Price Per 1000 C.Ft.	Standard Rate P.Ct.	Reduction of Dividend for Each Penny Increase in Price of Gas.	Authorized Dividend at Present Prices of Gas. P.Ct.
	s. d.	£ s. d.	s. d.	£ s. d.
Gas Light and Coke—				
Ordinary stock	3 2	4 0 0	2 8	2 18 8
South Metropolitan—				
Ordinary stock	3 1	4 0 0	2 8	3 4 0
Commercial Gas—				
4 p.ct. stock	3 3	4 0 0	2 8	3 12 0
3½ p.ct. stock	3 3	3 10 0	3 4	3 0 0
South Suburban—				
5 p.ct. ordinary stock	2 9	5 0 0	3 4	3 10 0
Brentford—				
A consolidated stock.	3 9	4 0 0	2 0	3 14 0
B consolidated stock.	3 9	3 10 0	2 6	3 2 6
Wandsworth, Wimbledon, and Epsom—				
A stock	4 0	5 0 0	2 6	6 7 6
B stock	4 0	3 10 0	2 6	4 17 6
C and new stock	4 0	3 10 0	1 9	4 9 3

As the recommendations of the Committee will not affect the London Companies until their dividends fall to one-half of the standard rates, there is a considerable margin in each case before any additional burden can be transferred from the shareholders to the consumers. The dividends of these Companies must accordingly decrease to a much greater extent before the Select Committee's recommendations, which are designed to assist only those companies "whose financial circumstances have been so seriously affected as to call for intervention," would be operative in London. There can be no question at the present time as to the financial stability of the London Companies.

There are, however, two matters to which we think it desirable to call attention. In recommendation No. 4 it is proposed that, before any claim by a company to an increase in the price of gas can be considered, the Board of Trade must first be satisfied as to the correctness of the accounts upon which the certificate of the company's auditor is based; and we think it would be well to secure that the authorized addition to the price of gas shall be subject to the exercise by the company of "due care and management," and also that a local authority should have the right to be heard upon any such application for an increase in price. It is also not clear what machinery is contemplated for securing that the consumer shall receive the benefit of any balance, should it prove that the special increase in price has produced an amount more than sufficient to meet the estimated deficit. These questions can, however, be dealt with if, as recommended by the Select Committee, a General Bill is introduced to give effect to their proposals.

INCREASE IN THE PRICE OF COAL.

The Board of Trade have made an Order increasing the price of all coal as from the 24th inst.

The amount of the increase is 2s. 6d. per ton, except in the case of shipments to France and Italy, for which the amount of the increase is 5s. per ton—the additional 2s. 6d. in these cases corresponding to the war wage increase of 2s. 6d. per ton which was not applied to shipments to France and Italy in October last. The increase corresponds to increases in the costs of working at the collieries in respect of which no increase has been made (except in South Wales and Monmouth and the Forest of Dean) since prices were fixed by the Price of Coal (Limitation) Act in July, 1915. The Order provides that, where the price under any contract is increased under its provisions, the prices under subsidiary contracts shall be increased by the same amount. The increase in colliery prices entails a corresponding increase in retail prices.

GAS SUPPLY IN SINGAPORE.

Mr. J. P. Hallaway, Gas Engineer to the Municipality of Singapore, reporting on the working of his department for the year 1917, says that three beds of vertical retorts have been in constant use; and the whole of the gas has been manufactured by this plant, which has worked most satisfactorily.

There was difficulty in procuring regular supplies of Australian coal; and in consequence it was necessary to use about 50 p.ct. of Japanese coal of somewhat inferior quality. The make of gas per ton was 12,637 c.ft., against 12,392 c.ft. for the previous year. There has been a considerable increase in cost, chiefly due to freight; and the tendency is still for prices to rise. In order to partly meet this increased cost, it was decided to raise the price of gas by 25 c. per 1000 c.ft. in April; and a further increase of 50 c. was made in November. The price of gas is now $3.00 per 1000 c.ft. When it is considered that coal for the year under review cost 150 p.ct. more than usual, the rate at which gas is being supplied is, he says, most reasonable. This result has been obtained by an increase in the output of gas, combined with a larger revenue from residuals and economical working.

The quantity of gas manufactured was 188,098,500 c.ft., against 165,054,300 c.ft. in the previous year—an increase of 13·9 p.ct. The

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sales of gas for private consumption show an increase of 18·2 p.ct. over those of 1916; this being the largest increase in any year since the works were taken over by the Municipality in 1901. The proportion of gas unaccounted for was 6·1 p.ct.

The net profit, at $86,022.84, is equal to 6·6 p.ct. on the capital.

HOUSE-PIPING AND FIXTURES.

Writing in the "American Gas Institute News," Mr. H. B. Andersen remarks that the logical times at which to make an inspection of newly installed gas-piping systems are: (1) After the piping only has been installed, and while it is still exposed to view; (2) after the completion of all the building construction that might tend to damage the piping, and before the fixtures have been attached; and (3) when the fittings have been added, and the building is ready for occupancy. The first and last are essential from the standpoint of the gas company, and the second, under special circumstances, from that of the builder or the fixture dealer. When the piping is to remain exposed permanently, and is to be used for fuel purposes only, the first inspection only should be required; while if the piping is exposed, and is to be used for illuminating or for fuel and illuminating purposes, and the applicant who installed the piping is also to put in the fixtures, the three inspections may be combined in one. Where necessary to avoid undue inconvenience to the tenant, the first inspection may be omitted if the building, or a portion of the building, is occupied. This inspection should determine whether the piping has been installed in accordance with the specifications, and should include the test for tightness—that is, a pressure test of 3 lbs. per sq. in., indicated by 6 in. of mercury column, which should show no fall during a period of ten minutes. The second inspection is for the purpose of a pressure test only, which should be the same as that required for the first inspection. The third inspection should determine whether the fixtures comply with the specifications, and should include the test for tightness of the combined piping and fixtures.

Provision should be made—particularly where walls are very thick—for the entrance of a gas service-pipe through the foundation walls of new buildings. The most suitable arrangement is to build in the wall a sleeve of iron or other pipe, at the point where the service is designed to enter. If the gas company furnish a sleeve (if required), and superintend its placing, architects and builders will be saved the annoyance of having walls cut into. The company should reserve the right to turn gas into any new piping, or into any old piping which has been interfered with.

Matlock Gas Charges.—The Matlock Bath Urban District Council, having obtained powers to increase the price of gas to a maximum of 5s. 6d. per 1000 c.ft., instead of 4s., have decided to at once give notice to the public to this effect.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

LONDON, *June 24.*

Pitch continues to be shipped from the Thames in fair quantities; and for export during next season there are more buyers than sellers in the market. The position is strong, and something over 55s. net per ton is reported to be readily obtainable. Solvent naphtha is worth about 3s. 10½d. to 4s. net per gallon naked at makers' works. There is nothing of interest to record as to other tar products.

The situation of sulphate of ammonia is unchanged.

Tar Products in the Provinces.

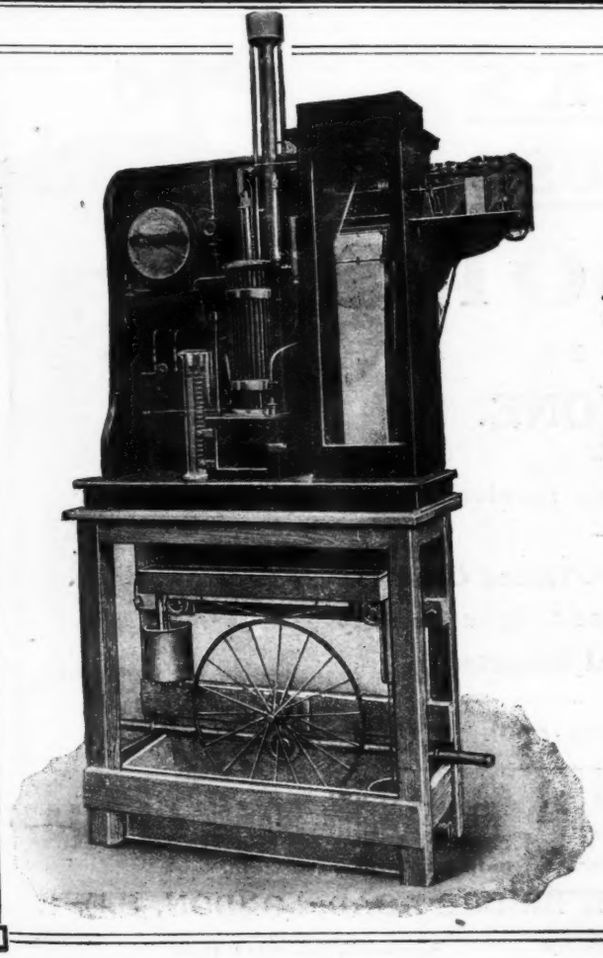
June 24.

The average values for gas-works products during the week were: Gas-works coal tar, 27s. 6d. to 31s. 6d. Pitch, East Coast 25s. to 30s. per ton; West Coast—Manchester 25s. to 30s., Liverpool 25s. to 30s., Clyde 25s. to 30s., nominal. Benzol 90 p.ct., North, 10½d. to 11½d.; 50-90 p.ct., naked, North, 1s. 3d. to 1s. 4d. Toluol, naked, North, 2s. 3d. Coal tar crude naphtha in bulk, North, 7¾d. to 8½d. Solvent naphtha, naked, North, 3s. 9d. to 3s. 10d. Heavy naphtha, North, 2s. 9d. to 3s. 1d. Creosote, in bulk, North 4d. to 4¼d. Heavy oils, in bulk, North, 4¼d. to 5d. Carbolic acid, 60 p.ct. East and West Coasts, 2s. 6d. to 2s. 9d. naked, nominal. Naphthalene salts, £6 to £7, bags included. Anthracene, "A" quality, 4d. to 6d. per unit; "B" quality, 1½d. to 2d.

FROM A MARKET CORRESPONDENT.

Tar Products.

Market conditions do not change very much. There are good inquiries for next season's pitch, but much hesitancy in entering into actual business, especially for export, on account of the difficulty in arranging shipment. Meantime, a fair amount of pitch is being exported from London at late rates, and the local trade is not to be despised. In the Provinces, a uniform rate of 30s. per ton is in operation on the East and West Coasts; and elsewhere there is a tendency towards higher quotations. Tar is in very good request, and fuel oils are much sought after. The output of creosote is large, and is absorbed as fast as produced. Benzol and toluol are in increasing demand, and pressure is being put on makers to produce to the fullest extent of their capacity. Carbolic acid is steadily bought. Cresylic acid continues a good spot. Aniline oil is dull, and anthracene rather firmer. Solvent naphtha commands 4s. 6d. in London; while in the Provinces, after a period of dullness, quotations are improving again.



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Two Gases

by means of the

CALORIFIC POWER

of the

RESULTANT MIXTURE.

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LTD.,
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WESTMINSTER, S.W. 1.

It is not likely that any coming regulations will interfere with present rates, although they may produce some confusion for a time. Heavy naphtha still remains without movement. Naphthalenes continue dull—the refined, on the difficulty of making shipments. Crudes remain unchanged at £5 10s. to £12 10s. per ton, according to quality.

Benzol: 90% London, 1s. 0½d., North 10½d. to 11½d.; 50% North 1s. 4d. to 1s. 5d. naked per gallon.

Carbolic Acid: 60% East and West Coast 3s. 6d. per gallon; crystals 40% 1s. 3d. per lb.

Crude Tar: London 32s. 6d. to 35s.; Midlands 27s. to 29s.; North 28s. to 30s. per ton, *ex* works.

Pitch: London 52s. to 55s. f.o.b. works: East Coast, 33s. f.o.b.; West Coast, 31s. f.a.s.; Manchester, 30s.; Clyde 29s.; South Wales 42s.

Solvent Naphtha: Naked London 90-190% 4s. 6d.; North 3s. 9d. to 4s. per gallon; 90-160% naked London 4s. 3d. to 4s. 6d.; North 4s. to 4s. 3d. per gallon.

Crude Naphtha: Naked 30% 8½d. to 8¾d.; North 6½d. to 6¾d.

Naphthalene: Refined £30 to £32 10s.; salts 80s., bags included.

Toluol: Naked, London 2s. 4d.; North 2s. 3d.

Creosote: Nominal, London 4½d.; North 4d. to 4¼d. (Government price, 75s. per ton f.o.b.—equal to 4⅜d. per gallon); heavy oil, 4½d. per gallon in bulk.

Anthracene: "A" quality, 40-45%, 4½d. per unit; "B" quality, 1¾d. to 2¼d.

Cresylic Acid: 95%, 3s. per gallon; 97-99%, 3s. 3d. to 3s. 6d. per gallon, casks included *ex* works London and f.o.b. other ports.

Grease Oils 18° Tw. (naked) £6 per ton f.o.r. makers' works.

Sulphate of Ammonia.

Demand is still very heavy, both for agricultural and munitions account. Export trade is not worth considering; and when the war is over, it is a question whether this part of the trade will not be found to have been lost as a result of the present export restrictions, due to the necessity of keeping sulphate produced here for our own agricultural and munition purposes. With the impetus given to agricultural affairs by the recent Corn Production Act, the demand for sulphate will be increasingly great for some time after the war; but even so, the present plants producing ammonia as a bye-product will be able to meet this demand quite easily. Consequently, any increased output, due to improvement in abstraction methods or to the synthetic production of ammonia, means an exportable surplus which has got to be provided for without any slackening of effort now. Here may be found a good reason why makers are not willing to embark capital on a synthetic production proposition.

The coal shortage had become so acute in Sligo last week, that there was serious risk of the gas-works having to close-down, and, of course, of all machinery run by gas having to stop. Matters are stated to have improved at the week-end; but the supply of coal is still much below the normal.

Results at Johnstone.

It is stated by Mr. James Dickson, the Gas Engineer and Manager, in his annual report to the Town Council of Johnstone, that, in spite of all difficulties, the year ended May 15 was a record one in the history of the works. The quantity of gas made was 116,487,000 c.ft., an increase of 17,462,000 c.ft. over the previous year; and the quantity sold was 107,081,000 c.ft., or 14,252,000 c.ft. more. The highest sale in any previous year was bettered by 9,268,000 c.ft. These results have been attained with a reduction in the amount of coal carbonized of 472 tons as compared with last year, and 1303 tons as compared with the previous highest year's sales. Coal cost 21s. 5d. per ton, against last year's average price of 19s. 5d.; and the aggregate coal bill is £9675. This sum is only £452 over last year's figure. The wages bill was £867 more than the previous year. On the income side, gas receipts were £16,444, an increase of £1872; the price of gas having been 2s. 10d. per 1000 c.ft. in both periods. The total yield of residual products was equal to 71 p.ct. of the cost of the coal. The gross profit on the year's working is £5263; and after meeting interest and sinking fund charges, there is a balance of £95. The estimates for the current year show a balance available next May of £907, with gas calculated out at the same price as last year—at which figure it is to remain.

Brief Strike at Bingley.—A strike of a few days' duration occurred at the Bingley District Council's gas-works last week. The trouble was among the stokers and machine men. They handed in their notices the previous week; but on the Monday they intimated that they were giving up work, though the notices had not expired, and they refused to wait until the Council had met in the evening. The Council appointed a Committee to interview the men; but no agreement was reached. In the meantime, the Chief Industrial Commissioner telegraphed to the union that the men must return to work, pending negotiations. Work was resumed on Wednesday night, at 10 o'clock. By emergency measures, the gas supply was maintained during the strike.

Hebden Bridge Gas Board.—The annual report and accounts of the Hebden Bridge and Mytholmroyd Gas Board show a gross profit of £5652, and a net profit of £1067, against £1397 last year. When the accounts came before the Board, Mr. T. H. Nield (Engineer) stated that 102,770,000 c.ft. of gas had been made, against 103,886,000 c.ft.; the coal carbonized being 8013 tons, as against 8302 tons. The working results were satisfactory under the extraordinary circumstances due to the war. The chief redeeming feature was the high price received for coke; but this had been counterbalanced by an increase of 2s. 6d. per ton for coal. Although 289 tons less had been carbonized, the cost was £740 more. The lighting restrictions and daylight saving scheme had a marked effect on the sale of gas. In the discussion, the Chairman stated that the Board would very likely be obliged to again increase the price of gas.

BRADDOCK'S
RETORT-HOUSE
GOVERNORS
HAVE PROVED TO BE
SECOND TO NONE.

Many repeat orders have been received.

Braddock's New Patent Retort-House Governor is a further improvement and is especially desirable for use with Vertical Retorts.

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Braddock's New Patent Enclosed Retort-House Governor.
Latest Type.

Further Particulars upon Application.

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AND 45 & 47, WESTMINSTER BRIDGE ROAD, LONDON, S.E. 1.
Telegrams: "METRIQUE, LAMB LONDON." Telephone No: 2413 HOP.

Price of Gas at Hull.—The British Gas Light Company announce at Hull the further and unexpected advances in the cost of labour have compelled them to revise the price charged for gas, which will be increased 2d., from 2s. 6d. to 2s. 8d. per 1000 c.ft., from and after the reading of the meters for the Midsummer quarter.

Appeal for a Gas Stoker.—At the West Riding Appeals Tribunal, at Leeds, last Thursday, the Manager of the Ripon Gas-Works applied for a hand gas stoker (27, single, Grade 1). He said that the works were in a bad state of repair, and there was a likelihood of an accident if the staff was further depleted. The gas consumption had very much increased, and labour was difficult to obtain to cope with the demand. The appeal was dismissed.

Coal and Shale Production in New South Wales.—According to the "Board of Trade Journal," the production of coal and shale in New South Wales for the year ended Dec. 31 shows an increase in both cases. The output of coal for 1916 was 8,127,161 tons, valued at £3,336,419; while the production for 1917 amounted to 8,292,867 tons, valued at £4,422,740—being an increase of 165,706 tons, and of £1,086,321 in value. The quantity of shale raised during 1917 totalled 31,661 tons, valued at £30,565, as against 17,425 tons, valued at £17,777, in 1916.

Wages at Arbroath.—Gas workers at Arbroath have had under consideration the offer made by the Corporation of 12½ p.ct. increase, in response to their request for payment of the Committee on Production award of 4s. increase in wages, *plus* 12½ p.ct. on earnings. The men consider that the Corporation offer is not in accordance with the award; and they have decided, through the local Executive of the Workers' Union, to intimate that they cannot accept the offer made, and adhere to their original request for payment of the full award.

South African Lighting Association, Ltd.—The Directors will report, for the year 1917, at to-morrow's meeting of the Association, a continued improvement in the business. The sales of gas at Port Elizabeth show a satisfactory increase on the quantity sold in 1916; but at Grahamstown there has been a slight decrease. During the past year, at Grahamstown, the price of gas has been reduced 10d. per 1000 c.ft.; and at Port Elizabeth a reduction of 5d. per 1000 c.ft. was made as from Jan. 1 last. The improved results obtained in 1917 are due to the use of a larger proportion of Colonial coal, and to further economies effected in working expenses. The Directors recommend an increase in the dividend from 9 to 10 p.ct. for the year, less income-tax. Of this dividend, 3 p.ct. was paid as an interim dividend last October. The final dividend will amount to £6300, and leave to be carried forward to the next year £5932.

STOCK MARKET REPORT.

GOOD as the position of things on the Stock Exchange was the previous week, and the week before that, it was actually rather better still in the week just closed. In this agreeable condition of affairs all markets participated, though not to an equal extent. The same old stimulating factors were in active operation. There was more money seeking investment than there was stock to satisfy the demand; and the war news was more than usually gratifying—including as it did the gallant arrest and counter of the Austrian offensive on the Italian front, and the evidence of grave internal troubles among the Central Powers. Prices in pretty well every department thus exhibited advances, and the volume of business improved a bit as the week went on.

The gilt-edged market was very firm. In Government issues, War Loans continued steady, and the rest generally held firm. Indian issues were in demand. Home Rails were in high favour, especially the prior charges, and had almost a triumphal progress. In Canadians, Grand Trunks pushed up steadily until near the close, when some realization of profits stopped the way. Argentines, too, had a period of strong demand.

The Foreign Market was quieter. French had a momentary cloud of dulness in mid-week, but quickly recovered. Russian and Belgian were inquired for, and met with some support. The Miscellaneous Market was active, and had several strong points.

Business in the Gas Market touched a higher point of activity than in any recent week. Prices moved irregularly and in obedience to special causes. Gas Light and Coke ordinary and maximum were easier by 2 points and 1 point respectively, under the influence of the Statutory Prices Committee's Report; but South Metropolitan was not affected. European recovered ½, and South African gained 1 in view of a higher dividend. Other changes were adverse.

In the Money Market there was a steady demand, and discount rates hardened.

Bargains done for cash during the week were as follows: On Monday, Bombay 5, Continental Union 30, Gas Light ordinary 62½, 62¾, 63, 63⅛, 63⅜, 64, ditto maximum 54½, 56½, Imperial Continental 86½; 87½, 87⅝, Primitiva 29s. 6d., 30s., ditto preference 52s., ditto debenture 75⅜, 76, River Plate 60½, 60⅝, South Metropolitan 64, 65, 65½, ditto debenture 54½. On Tuesday, Gas Light ordinary 60, 61, 61½, 62, ditto maximum 53, Primitiva 29s. 6d., 30s., ditto preference 50s., 52s., San Paulo preference 7⅜, South Metropolitan 64, 65, Tuscan debenture 45. On Wednesday, Cape Town 3⅞, Gas Light ordinary 61, 61½, ditto debenture 54½, Imperial Continental 87, 87⅜, 87½, ditto debenture 67, Monte Video 8½, Primitiva 30s., ditto preference 51s. 6d., 52s., San Paulo debenture 40⅜. On Thursday, British 30, ditto Norwich 4 p.ct. debenture 60, Continental Union preference 55, European 7¾, Gas Light ordinary 61½, 61⅜, 61½, Imperial Continental 87, Monte Video 8½. On Friday, Gas Light ordinary 60, 60¾, 61, 61⅜, 61½, 61⅝, ditto preference 69, 70, ditto debenture 54½, Imperial Continental 86½, 87, 87¼, Oriental 101½, Primitiva 29s., ditto preference 50s., San Paulo debenture 40⅝, South Metropolitan 65, South Suburban 69, 69¾, 70.

The Bank rate is 5 p.ct., as fixed on April 5, 1917.

ANTE-WAR PRICES AND DIVIDENDS, LATEST DIVIDENDS, AND LAST WEEK'S BARGAINS.

Issue. £	Share.	When ex-Dividend.	Ante-War Dividend & Bonus p.c.	Last Dividend.	NAME.	Closing Prices. July 20, 1914.	Present Prices.	Lowest and Highest Prices of Bargains.
182,049	Stk.	Mar. 10	4	4%	Aldershot 4 p.c. Pref.	..	55—60	..
1,551,868	,,	April 8	2½	4⅜	Alliance & Dublin Ord.	59—64	50—55	..
874,000	,,	July 10	4	4%	Do. 4 p.c. Deb.	76—79	58—63	..
260,000	5	April 29	7½	8%	Bombay, Ltd.	5⅞—6⅛	5—5⅛*	5
50,000	10	Feb. 26	16	13⅓	Bourne- (10 p.c.	20—30	21—23	..
888,110	10	,,	7	7%	mouth Gas (B 7 p.c.	15—15½	10½—11	..
115,000	10	,,	6	6/-	and Water (Pref. 6 p.c.	13½—14	9—9½	..
159,740	—	—	—	4%	(4 p.c. Deb.	..	67—69	..
992,045	Stk.	Feb. 26	14	14%	Brentford A Consolid.	261—266	76—79	..
734,920	,,	,,	11	11%	Do. B New	204—209	67—70	..
55,000	,,	,,	5	5%	Do. 5 p.c. Pref.	109—111	79—84	..
221,400	,,	June 11	4	4%	Do. 4 p.c. Deb.	91—93	62—64*	..
317,380	,,	Feb. 26	11	9%	Brighton & Hove Orig.	206—213	135—140	..
344,300	,,	,,	8	6%	Do. A Ord. Stk.	154—159	95—100	..
530,000	20	Mar. 26	12½	22/6	British	44—45	30—31	30
190,000	Stk.	June 26	4	4%	Do. 4 p.c. Deb. Stk.	88—90	65—67	..
345,771	,,	,,	4	4%	Buenos Aires 4 p.c. Deb.	85—87	51—54	..
100,000	10	—	—	—	CapeTown & Dis., Ltd.	1½—2½	3½—4½	3⅞
100,000	10	—	—	4½%	Do. 4½ p.c. Pref.	4—6	7—8	..
100,000	Stk.	June 26	4½	4½%	Do. 4½ p.c. Deb. Stk.	70—75	60—65	..
157,150	,,	Feb. 26	5	5%	Chester 5 p.c. Ord.	108—110	79—81	..
1,518,280	,,	Feb. 12	5/9/4	41/4	Commercial 4 p.c. Stk.	106—108	64—66	..
560,000	,,	,,	5½	26/8	Do. 3½ p.c. do.	108—105	62—64	..
475,000	,,	June 11	3	3%	Do. 3 p.c. Deb. Stk.	69½—71½	51—53*	..
800,000	,,	,,	4	—	Continental Union Ltd.	76—79	30—35	30
200,000	,,	,,	7	—	Do. 7 p.c. Pref.	115—118	55—60	55
278,400	—	—	—	11½%	Croydon B and C 7 p.c.	..	150—160	..
—	—	—	—	10%	Do. E	..	..	..
492,370	Stk.	—	6	6½%	Derby Con. Stk.	128—126	95—100	..
55,000	,,	—	4	4%	Do. Deb. Stk.	103—104	80—83	..
1,002,180	10	July 29	10	5/0	European, Ltd.	17½—18	7½—8½	7⅞
16,298,975	Stk.	Feb. 10	4/17/4	37/4	(4 p.c. Ord.	98—102	60—62	60—64
2,500,000	,,	,,	3½	3½%	Gas (3½ p.c. max.	76—79	52—54	53
4,063,285	,,	,,	4	4%	Light (4 p.c. Con. Pref.	96—99	68—70	69—70
4,674,850	,,	June 11	3	3%	and (3 p.c. Con. Deb.	72½—74½	54—56*	54½—56½
180,000	,,	,,	10	10%	Coke (10 p.c. Bonds	..	..	..
258,740	,,	Mar. 12	5	3½%	Hastings & St. L. 3½ p.c.	37—39	46—51	..
70,000	10	April 29	11	8%	Hongkong & China, Ltd.	15½—16½	7—8	..
86,600	—	—	—	9½%	Hornsey 7 p.c.	..	115—125	..
181,000	Stk.	Mar. 12	7½	7%	Ilford A and C.	151—154	90—95	..
65,780	,,	,,	6¾	5½%	Do. B	115—118	70—75	..
65,500	,,	June 26	4	4%	Do. 4 p.c. Deb.	92—94	68—66	..
4,940,000	,,	May 14	9	4½%	Imperial Continental	150—160	86—89	86½—87½
1,235,000	,,	Feb. 12	8½	3½%	Do. 3½ p.c. Deb. Red.	84—86	66—68	67
235,242	,,	Mar. 12	6½	6½%	Lea Bridge Ord. 5 p.c.	119—121	82—87	..
2,498,905	,,	Feb. 26	10	5%	Liverpool 5 p.c. Ord. (A	211—213		..
					(B	146—148	82—84	..
806,082	,,	June 26	4	4%	Do. 4 p.c. Pr. Deb. Stk.	..	71—73	..
75,000	5	June 11	6	2/-	Malta & Mediterranean	4½—4⅝	3⅝—3⅞	..
250,000	100	April 1	4½	4½%	Met. of (4½ p.c. Deb.	99—101	88—99	..
541,920	20	May 28	4	6/-	Monte Video, Ltd.	11½—12	8½—8¾	8½
1,875,892	Stk.	July 29	4½	3½%	Newcastle&Gatsh'd Con.	99½—99½	69—71	..
539,705	,,	June 26	3½	3½%	Do. 3½ p.c. Deb.	82—83	63—64	..
65,940	10	Feb. 26	7/14/0	7%	North Middlesex 7 p.c.	14—15	9½—10½	..
800,000	Stk.	May 14	8	8%	Oriental, Ltd.	117—123	101—105	101½
60,000	5	Mar. 26	10	1/-	Ottoman, Ltd.	7½—73	2—3	..
60,000	50	Feb. 26	13	10%	Portsea, Island B	133—131	80—85	..
100,000	50	,,	12	9%	Do. C	118—121	75—80	..
52,000	50	,,	10	7%	Do. D	..	..	..
249,980	5	April 29	8	—	Primitiva Ord.	5½—6	1⅝—1⅞	29/—30/-
499,960	5	June 26	5	2/6	Do. 5 p.c. Pref.	4⅝—5	2½—2⅝	50/—52/-
521,600	100	June 2	4	4%	Do. 4 p.c. Deb.	91—93	75—77	75½—76
—	—	—	—	4%	Do. ,, ,, 1911	..	..	..
345,198	Stk.	June 26	4	4%	River Plate 4 p.c. Deb.	85—87	57—62	60½—60¾
150,000	10	May 14	6	6/-	San Paulo (6 p.c. Pref.	10½—11	7½—7⅞	7⅞
125,000	50	July 1	5	5%	(5 p.c. Deb.	47—49	40—42	40½—40⅝
135,000	Stk.	Mar. 12	10	10%	Sheffield A	228—234		..
209,984	,,	,,	10	10%	Do. B	223—234	174—177	..
628,500	,,	,,	10	10%	Do. C	220—222		..
90,000	10	May 28	9	8/-	South African	10½—11½	10—11	..
6,009,895	Stk.	Feb. 10	5/4/0	40/-	South Met. 4 p.c. Ord.	111—113	64—66	64—65½
—	—	—	—	—	Do. Pref.	..	93—95	..
1,895,445	,,	July 10	8	8%	Do. 3 p.c. Deb.	72½—74½	54—56	54½
224,820	,,	Feb. 26	8½	6%	South Shields Con. Stk.	157—159	121—123	..
962,795	,,	,,	6	4½%	S'th Suburb'n Ord. 5 p.c.	114—116	69—72	69—70
60,000	,,	,,	5	5%	Do. 5 p.c. Pref.	110—112	73—75	..
135,000	—	—	—	4½%	Do. West Kent	..	..	..
187,558	Stk.	June 26	5	5%	Do. 5 p.c. Deb. Stk.	116—118	84—86	..
647,740	,,	May 14	5	3%	Southampton Ord.	99—102	74—76	..
120,000	,,	Feb. 12	7½	5½%	Tottenham (A 5 p.c.	135—138	90—95	..
782,275	,,	,,	6	4%	District (B 3½ p.c.	115—117	67—69	..
181,255	,,	June 26	4	4%	(4 p.c. Deb.	87—89	61—63*	..
182,380	10	Dec. 30	5	—	Tuscan, Ltd.	5—6	1—2	..
149,900	10	July 1	5	5%	Do. 5 p.c. Deb. Red.	93—95	45—50	45
236,476	Stk.	Mar. 12	5	5%	Tynemouth 5 p.c. max.	108½—109½	87—88	..
80,000	,,	Feb. 26	8⅜	67/6	Wandsworth, Wimbledon, and Epsom— Wandsworth A 5 p.c.	151—156	108—113	..
255,636	,,	,,	6⅝	52/6	Do. B 3½ p.c.	129—134	80—85	..
108,075	,,	,,	5/17/3	47/3	Do. C 3½ p.c.	110—115	80—85	..
353,000	,,	,,	6⅝	46/3	Wimbledon 5 p.c.	117—123	80—85	..
98,000	,,	,,	6⅝	52/6	Epsom 5 p.c.	121—126	80—85	..
88,416	,,	June 26	3	3%	3 p.c. Deb. Stk.	66—69	49—53	..

* Ex Div.

Dundee Gas-Works' Accounts.—The Finance and Gas Committees of the Dundee Town Council have agreed to an increase of 3d. per 1000 c.ft. in the price of gas. The charge for electricity is also to be raised. Treasurer Robertson, in submitting the accounts and estimates of the gas department, said the total revenue for the past year was £206,608, and the expenditure £208,650. The gas sold showed an increase in quantity of 10 p.ct., and £13,500 in value. The cost of manufacture and distribution exhibited an increase of £16,700, chiefly in coals, repairs, and wages. For the current year, they estimated the total cost at £11,800 more than last year; and the only means of balancing the accounts was by increasing the price of gas from 2s. 9d. to 3s. per 1000 c.ft.

Stafford Gas Undertaking.—The Stafford Town Council have deferred until their next meeting a recommendation from the Gas Committee to increase the salary of Mr. W. M. Valon (the Gas Engineer) by £55 per annum. In the course of a discussion on the matter, Alderman Westhead remarked that the selling price of gas was at present only 1d. and a fraction more than it was in 1910, when Mr. Valon came to Stafford; while coal had cost nearly 1s. per ton more. These facts should be noted, when people complained that the present price of gas was somewhat high. During the past year, the gas unaccounted for amounted to only 5¼ million c.ft., as compared with a little over 13 millions last year. The quality of the gas supplied to the town had been as good as usual.

Gas-Works Management at Dunfermline.—It was stated in last Saturday's issue of the "People's Journal" that Mr. Alexander Waddell, who went from Broughty Ferry in 1900 to be Manager of the Dunfermline Corporation Gas-Works, has been asked by the Dunfermline Town Council to resign. At the last ordinary meeting of the Council, Provost Harley made a statement with regard to the administration of the works and the condition of the new vertical retorts. It was then resolved that a special meeting be called, in order to give Mr. Waddell an opportunity of replying to the criticisms of the Provost. After hearing the Manager at this special meeting, a long discussion took place, at the close of which it was resolved, by twelve votes to five, to ask Mr. Waddell to resign.

Newry Gas Undertaking.—The report on the working of the Newry municipal gas-works for the year ended March last shows a gain of £1928 on the manufacture and sale of gas account, or a decrease of £152 on the previous year. To this was added bank interest, £10; making a total of £1939. Against this was charged interest £582, and £983 in respect of the sinking fund, leaving a profit of £373—a decrease of £150 on the previous year; while there remains unpaid £200, balance of income-tax. The profit and loss account now stands to credit at £15,095, after charging £730 to depreciation. The total gas manufactured during the year was 34,271,000 c.ft., of which there was accounted for 32,124,500 c.ft., leaving an apparent deficiency of 2,146,500 c.ft., equal to a leakage of 6·2 p.ct.

Droitwich Gas Undertaking.—The annual report of the gas undertaking was presented at a meeting of the Droitwich Fire and Lighting Committee by Alderman Gabb. On the whole, he considered the report highly satisfactory. The Sunday supply was, however, inadequate; and it appeared that if the mains were not large enough an alteration must be made. The works had cost the Council £20,000. They had raised, by loan, £14,000; and the difference of £6000 had come out of revenue. The department was now free of debt. During the last four years their balances had been falling; and, if anything imperative in outlay came along, it would be necessary—perhaps next year—to raise the price of gas. Their figures compared favourably with those of similar towns; and, with one exception, their gas at 2s. 10d. per 1000 c.ft. was the cheapest in England—for the size of the town. The management of the undertaking by Mr. Thomas was creditable.

Worcester Gas Prices.—The Worcester New Gas Light Company announce that the price of gas will in future be 3s. 10d. per 1000 c.ft., subject to a discount of 10d. per 1000 c.ft., and a further discount of 2d. per 1000 c.ft. for motive power (when the gas consumed is registered by a separate meter), on payment of the account within a month from the end of the month next following each quarter day.

Bingley Gas Prices Advanced.—The Gas Committee recommended to the Bingley District Council last week an advance in charges by 1s. per 1000 c.ft., from 2s. 4d. An amendment by Mr. Leach was to the effect that the increase should be only by 8d., to 3s.; it being thought that the increased prices for coke and residuals would help to maintain the business. Mr. Turner (the Chairman of the Committee) admitted that the proposed rise was heavy, but said the position had been well thought out. For the year recently closed, there had been a loss of nearly £2000. There would be a similar loss again if the price were not advanced; and they had to provide £1000 for increased wages this year. All materials were still rising in cost; and there were possibilities of still higher wages costs. The amendment was defeated. A further amendment that the matter be adjourned until the detailed financial statement for the past year had been considered was lost, and the recommendation was adopted.

The Directors of the European Gas Company, Ltd., have decided, subject to audit, to recommend the payment of a dividend of 6s. per share, free of income-tax, on Aug. 1 next, which, with the interim dividend paid on Feb. 1 last, will represent a total dividend of 5 p.ct., free of income-tax, for the past financial year.

An illustrated list of castings and apparatus draws attention to many useful appliances made by Messrs. Meldrums Ltd., of Timperley, Manchester, for use in explosive and chemical works, and in the acid, dye, and textile trades. Another leaflet points out that the "Meldrum" combustion appliances cover the entire range of efficient combustion, heat utilization, and refuse destruction.

An inquest was held at Leeds last week with reference to the death of Joseph King, who was found dead in bed with one end of a flexible gas-pipe in his mouth, the other end being attached to the bracket. A Coroner's Jury at Sowerby Bridge returned a verdict that "Deceased took his own life, but with no evidence as to the state of mind," in the case of Samuel Gledhill, a retired cotton spinner, who was found dead on the floor at his home, with a gas-stove under his clothing and his smock over his head; the gas being turned on full.

Results are to hand of the appeal to the "Professions and Industries" which Mr. Herbert Brown was asked by Sir Arthur Yapp to make for the Y.M.C.A. last December and January; though even now the list of subscriptions is not complete. A satisfactory total is, however, shown of £463,177. Among the amounts included are: Chemical trades, £1137; coal, £32,360; iron and steel, £667; and petrol and oil, £925. Mr. Brown asks to be allowed the opportunity of again thanking all who have helped him so much in the various trade efforts.

NEWSPAPERS FOR NEUTRAL COUNTRIES.

The Secretary of the War Office has issued the following order:

The public are informed that newspapers and other printed publications will not be sent to Neutral Countries unless they are posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose. Persons desiring to send newspapers, &c., to Neutral Countries should, therefore, give their orders for execution to publishers or newsagents who have obtained such permission.

The Publisher of the "JOURNAL" has obtained the required permission of the War Office; and he will, on receipt of instructions, forward copies direct from the office to any neutral country.

WANTED, FOR SALE, CONTRACTS, &c., ADVERTISEMENTS IN THIS WEEK'S "JOURNAL."

Appointments, &c., Vacant.

JUNIOR ASSISTANT CHEMIST. No. 6457.

GENERAL FOREMAN. No. 6462.

WORKING FOREMAN. Horsham Gas Company.

Plant, &c. (Second-Hand), Wanted.

TANK WAGON (Hire or Purchase). Davies, Tottenham.

Plant, &c. (Second Hand) for Sale.

PIPES. West Hartlepool Gas and Water Company.

PURIFIERS. Draycott Gas Company.

PURIFIERS. Shirebrook Gas-Works.

PURIFIERS, VALVES, CONNECTIONS, TRAVELLIN CRANES, IRONWORK, &c. Bolton Gas Department. Tenders by July 11.

USE OF TAR STILL WANTED. No. 6463.

TENDERS FOR

Coal.

HAVERHILL URBAN DISTRICT COUNCIL. Tenders by July 9.

NEWARK GAS COMPANY. Tenders by June 28.

PENRITH GAS DEPARTMENT. Tenders by July 1.

WESTBURY GAS COMPANY. Tenders by July 12.

Tar.

PENRITH GAS DEPARTMENT. Tenders by July 1.

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FOR GAS PURIFICATION.

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No notice can be taken of anonymous communications. Whatever is intended for insertion in the "JOURNAL" must be authenticated by the name and address of the writer—not necessarily for publication, but as a proof of good faith.

COPY FOR ADVERTISEMENTS for the "JOURNAL" should be received at the Office NOT LATER than TWELVE O'CLOCK NOON ON MONDAY, to ensure insertion in the following day's issue.

Orders to Alter or stop PERMANENT ADVERTISEMENTS should be received by the FIRST POST on Saturday.

Wanted, For Sale, and Tender Advertisements, Six Lines and under 3s.; each additional Line, 6d.

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All Communications, Remittances, &c., to be addressed to WALTER KING, 11, BOLT COURT, FLEET STREET, LONDON, E.C. 4.

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(See p. 608.)

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IT is desired to Thank the Gentlemen who offered themselves as Candidates for this Appointment, advertised in the "JOURNAL" of the 28th ult. and the 4th inst., and to inform them that THE POSITION HAS NOW BEEN FILLED.

WANTED—Junior Assistant Chemist for Tar-Works Laboratory to do Eight-Hour Shift Work in Metropolitan Area.
Apply, by letter, to No. 6457, care of Mr. KING, 11, Bolt Court, FLEET STREET, E.C. 4.

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The above may be inspected at the Gas-Street Works on Application to the Gas Engineer and Manager.
Tenders, endorsed "Purifiers," to be sent to the undersigned not later than Thursday, July 11, 1918.
SAMUEL PARKER,
Town Clerk.
Town Hall, Bolton,
June 14, 1918.

THE Directors of the Newark Gas Company are prepared to receive TENDERS for the Supply of about 1000 Tons of Screened GAS COAL, to be Delivered as required over the Twelve Months ending June 30, 1919.
The Directors reserve the right to accept Tenders for the whole or any portion of the quantity offered, and do not bind themselves to accept the lowest or any Tender.
Tenders should be received by June 28.
F. A. WEST,
Engineer and Manager.
26, Market Place,
Newark.

TENDERS FOR COAL.

THE Haverhill Urban District Council invite TENDERS for the Supply of 1800 Tons of Best GAS COAL (Screened or Unscreened), to be Delivered at the Haverhill (Great Eastern Railway) Station in such quantities and at such periods as may be ordered from time to time between the 1st day of September next and the 31st day of August, 1919.
No Form of Tender is provided, nor will be supplied.
The Council reserve the right to divide the Contract as they think fit, and do not bind themselves to accept the lowest or any Tender.
Sealed Tenders, endorsed "Gas," to be Delivered to me on or before the 9th day of July, 1918.
JAMES BEASLEY,
Clerk.
Haverhill,
June 18, 1918.

WESTBURY GAS COMPANY.

THE Directors invite Tenders for the Supply of 200 to 500 Tons of GAS COAL Delivered Westbury (G.W.R.), in even quantities over the Twelve Months ending June 30, 1919, to be sent to the Managing Director, N. H. HUMPHRYS, 5, Wyndham Road, SALISBURY, before the 12th prox.

PENRITH URBAN DISTRICT COUNCIL.

TAR.

THE Gas Committee of the above Council are prepared to consider TENDERS for the Purchase of the Surplus TAR produced at their Works during the Year ending June 30, 1919.

Tenders, endorsed "Tender for Tar," stating Price per Ton, must be Delivered to Mr. Geo. Wainwright, Clerk, Town Hall, Penrith, not later than noon on Monday, July 1, 1918.

The Committee do not bind themselves to accept the highest or any Tender.

Further Information may be obtained from

E. SHAUL,
Manager.

Gas-Works,
Penrith,
June 20, 1918.

GAS COAL.

THE above Committee are also prepared to consider TENDERS for the Supply of 4500 Tons of GAS COAL (Nuts preferred) during the Year ending June 30, 1919.

Tenders, stating Price per Ton on Rail, Penrith, must be Delivered to Mr. Geo. Wainwright, Clerk, Town Hall, Penrith, not later than Monday, July 1, 1918.

E. SHAUL,
Manager.

Gas-Works,
Penrith,
June 21, 1918.

THE GAS LIGHT AND COKE COMPANY.

NOTICE is Hereby Given, that the TRANSFER BOOKS of this Company, SO FAR AS THEY RELATE TO CAPITAL STOCKS, WILL BE CLOSED at Four o'clock p.m., on Tuesday, the 2nd day of July next, and will be RE-OPENED on the morning of Friday, the 2nd day of August next.

By order,
WILLIAM LYLE GALBRAITH,
Secretary.

Chief Office,
Horseferry Road,
Westminster, S.W. 1.
June 18, 1918.

BARNET DISTRICT GAS AND WATER COMPANY.

NOTICE is Hereby Given that the TRANSFER BOOKS of this Company, RELATING TO DEBENTURE STOCK ONLY, WILL BE CLOSED on 28th of June, 1918, and REOPENED on the 1st of July, 1918.

By order of the Board,
ERNEST W. DREW,
Secretary.

139, Cannon Street, E.C.,
June 20, 1918.

SALES BY AUCTION OF GAS AND WATER STOCKS AND SHARES.

MESSRS. A. & W. RICHARDS beg to notify that their SALES BY AUCTION of NEW CAPITAL ISSUED UNDER PARLIAMENTARY POWERS, and of STOCKS and SHARES belonging to EXECUTORS and other PRIVATE OWNERS in LONDON, SUBURBAN, and PROVINCIAL GAS and WATER COMPANIES, take place PERIODICALLY at THE MART, TOKENHOUSE YARD, E.C.

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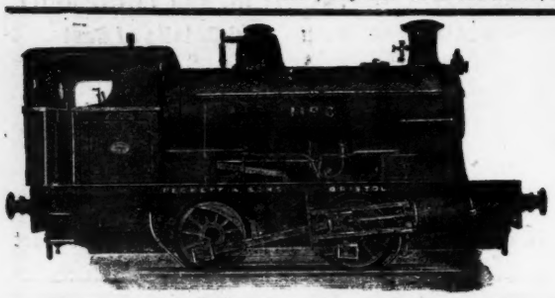

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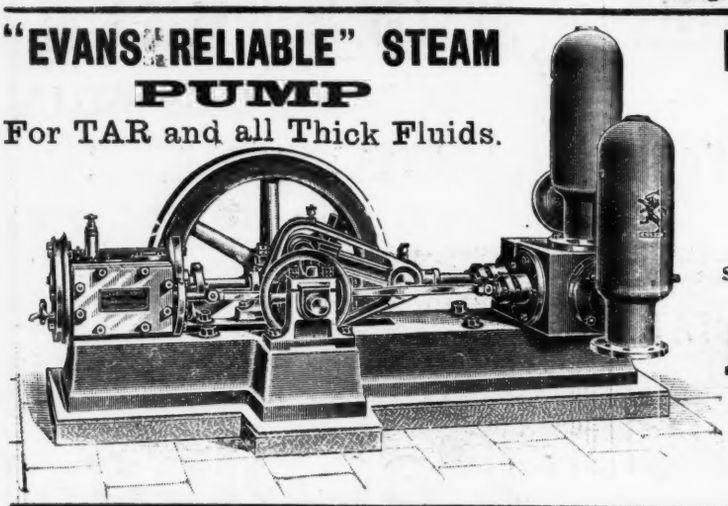

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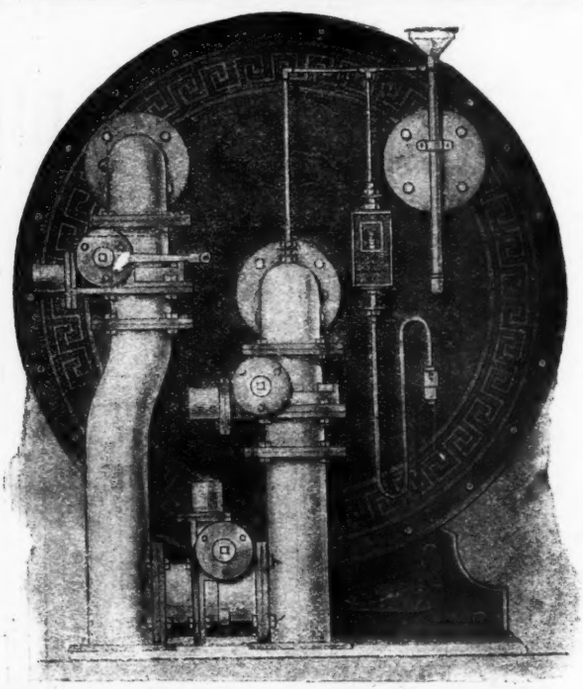

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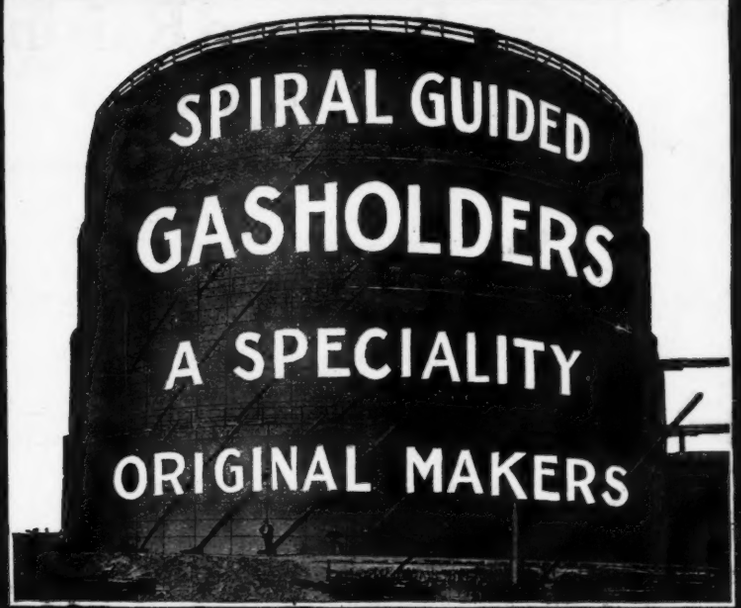

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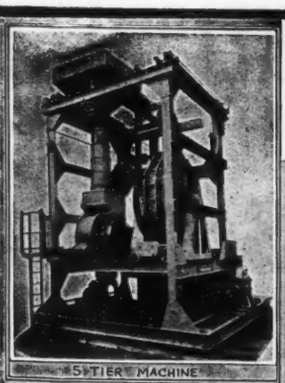

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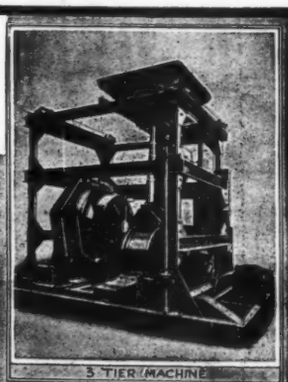

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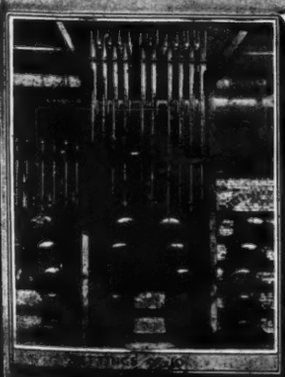

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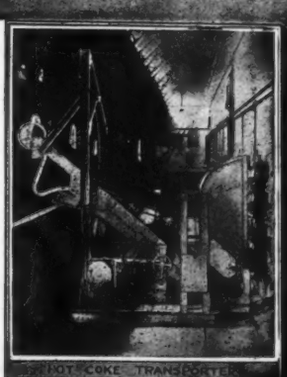

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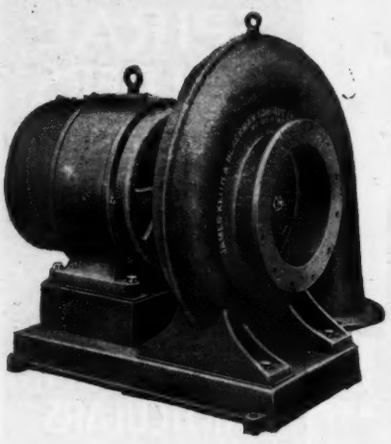

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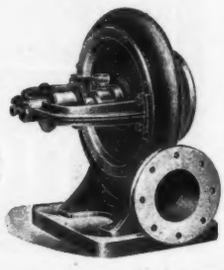

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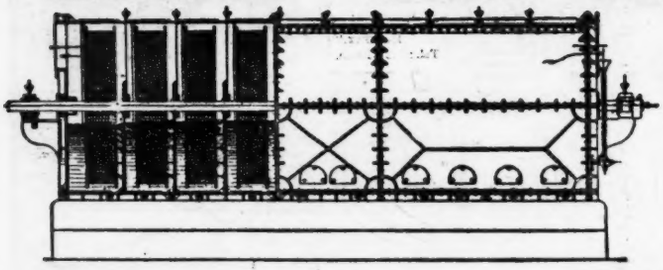

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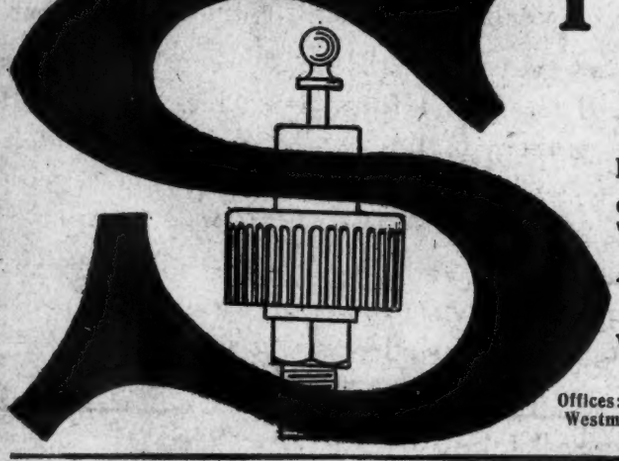

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